The Builder.

VOL. XXV.—No. 1292.

The Manufacture of "Roughs."

HOW shall we improve the education of our artisans, so that England may not be behind in the industrial race, is a question that is being earnestly asked in several quarters. We have done something towards echoing the question, if not towards the preparation for eliciting a right response. The answer must be obtained, and acted on with promptitude and earnestness, if this country is to keep its place; and we shall not be found wanting in endeavours towards that end. Just now, however, we would go a little lower in the body-politic, and speak of the entire absence of education there, and the urgent and crying need for it that exists. The Reform Bill of 1832 gave an impulse to education. Let us hope that the new measure of reform about to be bestowed on the people of England will act in like manner, and with redoubled force, and we do hope it and expect it. People have talked of the schoolmaster being abroad, and the general spread of education. Never was a greater or more mischievous error entertained. Talk of the spread of education? Why, Parliamentary returns show that one-third of the men of Hertfordshire, Cambridgeshire, and Norfolk, who married in 1865, had to make their mark instead of signing their name to the register; and that more than a third of the men of Suffolk, Bedfordshire, and Staffordshire were in the same discreditable predicament. Why, in South Wales more than half the women were unable to write their names when married; and in Bedfordshire, where the children are put early to work at straw-plaiting, the proportion of the uninstructed was very little less. In Liverpool, out of 23,740 persons who were apprehended in 1866, only 253 could read and write well; while of 720 children, dealt with under the Juvenile Offenders' Act, not one could do so.

For the 148,000 marriages that were made in England in 1864, 42,000 of the men and 58,500 of the women (using round numbers) signed with a mark!

Whatever is spent on education is saved twice over, and more, in prisons and police; to say nothing of the mighty saving of misery and life. This is pretty generally admitted: how can it be denied? But we are very slow to act upon it. Some of the hinderances are found where, without knowledge of the human mind, one would scarcely expect to discover them. When all things are ripe for a large extension of the blessings of education, even Religion and Conscience step forward, and with a resist-to-the death expression bar the way. Not that they are opposed to education; they have got beyond that after long reflection; they desire that education should be given, but it must be their own sort of education, and mixed up with their own menstruum.

"'Orthodoxy' is my doxy, 'heterodoxy' anybody else's doxy: and that doxy I oppose to the last."

And so neglected weeds grow apace, and instead of corn we get deadly-nightshade: instead of men and women with honest hearts and clear minds, we get "roughs;" and from roughs come burglars, garotters, and murderers.

The cost of crime is enormous; in fact, it cannot be counted. It operates in a hundred ways. Look at what the expense of the machinery towards punishment of crime alone amounted to in 1866 according to judicial returns:—

Police	£1,827,105	16	7
Sums paid by her Majesty's Treasury on account of criminal prosecutions	143,511	6	6
Cost of prisons	614,677	12	8
Cost of convict prisons	237,333	2	0
Paid by her Majesty's Treasury on account of reformatory schools	51,734	6	1
Do. do. industrial schools	18,567	10	6
Criminal lunatics	45,037	12	0
	£2,937,967	6	4

Three millions sterling *per annum*, and this is not all or anything like all. Another million, at least, should be added for the interest on money expended on buildings, the salaries of various officials, and other items. And each year it becomes greater!

Convicts in England, according to returns, cost 34*l.* 7*s.* a head per annum. What do they cost the country when they are free? The number of the criminal population in England and Wales was computed in the year 1864-5 to be 145,000, and we believe this to be enormously under the mark. Including beggars and persons subsisting by other disgraceful means the number has been calculated at 250,000. Let us, however, take the first to be the number, and say there are 145,000 persons, 117,000 of whom are at large, destroying instead of producing, living upon the industry of others,—taking from the community instead of giving to it. Would 50*l.* per annum a-piece be too much to put down as the loss caused by them to the community? No, nor enough, and yet at that sum we get nearly six millions to be added to the other four millions; or ten millions sterling a year, the cost of crime. If part of the cost of pauperism were added to this, as it might fairly be, the amount would be raised some millions more.

Proper education would save much of this enormous expenditure, and would not cost what it saved. We may safely say that four boys can be educated at the annual cost to the community of one moderately successful burglar. What gain, then, to that community, what gain to the sum of human happiness, if we picked out of the dirt four boys who otherwise would probably become burglars, and rendered them fairly honest and industrious members of society! We will say nothing here about souls; we are talking only of bodies; and yet the recollection that they have souls ought to strengthen the argument.

This is no new cry with us, no fresh perception. Fourteen years ago and more, the writer of these lines said, and afterwards, again and again, in varied words,—

"The number of children who at this time are being educated in vice, fitted for disturbing and injuring society, forbidden from good and prepared for a life of misery; children who have no affections or ties; in whom natural good feelings have been quenched; who have no advisers but the bad; no home, no hope; is perfectly appalling. They are to be counted in thousands; we fear to say how many. Can nothing be done to save them, and so save society? Here is a fertile field appealing for labourers to the Christian, the philanthropist, the political economist, and the mere egotist, who would save himself money and annoyance by preventing, instead of punishing. Let us remember there is no irremovable reason why these children should grow to be disorderly and lawless—liars, thieves, perhaps murderers; they were born as capable of good as your own offspring; and, with the same nurture and teaching, would make as useful members of society. Lead them into good habits; imbue them with right principles, and their lives, in the natural course of things, will be in accordance with those habits and principles. Equally, as a matter of course, will the lives of these poor outcasts follow the training they are now receiving. Knowing the seed, we know what the plant must be. It seems almost an injustice to punish for a natural result." *

A few evenings ago we spent an hour with five ragged little waifs of the London streets, not *one* of whom knew what discipline or letters were. Two of them lived "hany how;" two "nohows;" and, with one exception, it seemed pretty clear that when an opportunity for pilfering with safety occurred, it was regarded by them simply as a piece of luck. The story told by most of them was similar to what has been often heard before, and we need not repeat it. The condition of mind exhibited (the mingled ignorance and cuteness) was dreadful to contemplate. One, as pretty a boy as could be found without difficulty, showed generous impulses and inclinations to right. In the rest all such feelings had been smashed out, if they ever existed, and their faces were as debased as their minds. It is unnecessary to say what might have been the fate of these children, and what it will be? What has become of the boys and girls we questioned thirteen or fourteen years ago in the Golden-lane district, the courts of Gray's Inn-lane and Drury-lane, the slums of Bishopsgate-street, Bethnal Green, and Whitechapel? What *could* they have come to but the bad? The great majority of them went to increase the ranks of the dangerous classes, have preyed upon society that disregarded them, and have filled, at society's expense, workhouses, hospitals, convict prisons, penal settlements, and pauper graves.

We showed years ago the extent and danger of the undercurrents of London society; that lying in the dark shadows of London, bred in town swamps, and living in the midst of ignorance, dirt, vice, and social degradation, an army of rough and desperate men and women existed unsuspected and uncared for. They are to be counted in thousands. An execution or a local riot sometimes brings them into daylight, but at ordinary times they are to be found only where they live, massed together, and under such conditions that improvement is scarcely possible.

Now is the time,—this very day,—to stop the recruiting of these fearful ranks. It is a disgrace to us that we should have such a class as "roughs;"—it means short-sighted parsimony and criminal neglect. The thousands of children running the streets of London and other places may be very nearly what we choose to make them. Humanity, Christianity, economy, self-interest, are all in favour of rendering them decent members of society. See that every child be awakened to a perception of the difference between good and evil, and receive the elements of knowledge. As the education and the training, so are the children; as the children, so are the men and women.

We stood nearly alone when we urged the Legislature to prevent men from murdering their own flesh and blood by a law against the overcrowding of dwelling-houses; and such a law has since been passed.

In calling upon the State not merely to see that the means of education are placed within the reach of every child, and that all connected with them should be compelled to avail themselves of these or other means, but in the event of this failing to give that education itself,—in fact, for the compulsory education of every child,—we have now with us a large portion of the public and many eminent social reformers. We have no doubt whatever that this will be ultimately done. We want it done at once. The Government that effects it, be it Whig or Tory, will deserve and have the never-dying gratitude of England in the future. Children are the sacred trust of the State. Improve the homes and teach the children, and we shall soon cease to have "roughs,"—soon lessen the number of the dangerous classes. We urge upon all interested in this holy cause the immediate necessity of renewed and continuous exertion:—

"Fail not for sorrow, falter not for sin,
But onward, upward, 'till the goal ye win."

* "London Shadows." By Geo. Godwin.

ENGINEERING AND AGRICULTURE.

The violent reaction brought about by the entire loss of confidence of the public in enterprises of every description, owing to the collapse of numerous rotten schemes brought out by speculators, after the passing of the Limited Liability Act, has resulted in a very anomalous state of affairs. With money at an unprecedented low rate of interest there is no appearance of activity in any of those channels which have, during the present century, employed to such a great extent one division of the professional talents of the country, and which have absorbed the investments of the people to an amount almost equal to the national debt. The railway system having extended itself to nearly every part of the island, and every town of importance being put in communication with the great centres of commerce, can no longer be expected to find sufficient employment for the great body of engineers who have been called into existence by the necessities of the construction of the various lines; and, although there yet remains a vast quantity of useful work to be done in that direction; in sewering some of our towns; in providing others with an adequate supply of water; in the construction of docks and harbours, and other similar undertakings; yet the engineering world cannot look forward to the same active times as those which have gone by, until some genius,—some other Watt or Stephenson,—shall arise and change the whole method of locomotion, causing railways to retire and keep company with the old turnpike roads of the past.

Engineering talent having, by the extension of railways, given such a surprising impetus to trade and manufactures, and so found employment for thousands of hands, which otherwise would not have been required, tending to a vast and annual increase in the population, may be said to be morally bound to do all that lies in its power to assist in providing for the maintenance of the growing numbers. While the population of the island is annually increasing at the rate of many thousands, the area of ground remains the same, and cannot be increased; and unless other means are taken, there is no remedy but to become more and more dependent on foreigners for our supplies, and to cripple our resources by sending capital out of the country in exchange for food, instead of keeping it at home to be employed in the more profitable cultivation of our own lands. It is obvious that every extra unit of useful produce we can compel from our soil, by availing ourselves of the resources of nature and art, is so much clear and actual addition to the wealth of the country; and although the island cannot be increased in size, yet a very considerable portion of it may be made to yield a large addition to its present produce, and much which is now utterly barren be turned into fruitful land.

Here then is an opening for unemployed engineering and mechanical talent, and an outlet for investments which would yield a sure and certain return to the investor, and be productive of a national benefit in its results.

The more prominent improvements in the cultivation of the soil which may be said to come within the scope of the engineer include drainage, irrigation, embankments, and steam cultivation.

Since the days when Elkington first introduced the modern system of drainage, it has made such way that prejudice has vanished, and there probably does not exist the farmer who is not convinced of the desirability of drainage for his land: the only cause to be assigned for so many thousands of acres yet remaining undrained is the want of spirit or capital on the part of the proprietors or their tenants. But, although much has been done, a great deal of it has been done very badly, and to little purpose. The necessity and advantage of drainage, having once thoroughly permeated the agricultural mind, through the unceasing efforts of the engineers who took up this department of their profession, and whose skilfully designed and executed works paid so well for the outlay, has, in proportion to the difficulty which was at first encountered in convincing the farmer of its utility, led to the idea that draining can be carried out without the aid of skill and experience. The services, therefore, of the drainage engineer are dispensed with; and the tiles being laid in the ground, the field is considered as drained,—only in many cases for the unfortunate occupier to discover that his work has done him more harm than good. There is hardly a land-agent or surveyor who could not tell of numerous absurd mistakes, and large sums of money which have been thus wasted by tenants who have executed their own drainage, the landlords having provided the material, and thus wasted his own and their money. There ought not to be an acre of land in the country which is not properly drained, and it is to the interest of every proprietor that he should himself undertake this work. The want of capital need be no obstacle, special legislation having provided for this, and companies being in existence who will advance the funds required, whatever the title of the occupier to the land.

The arterial drainage of the country may also well deserve the attention of the engineer. Here is a fine field open for the exercise of talent and ingenuity by improving and straightening the natural brooks and watercourses, cutting fresh channels, and training the outfalls of rivers through their estuaries to the sea. Perhaps there cannot be found now in this island a tract of land in the same condition as the fens of Lincolnshire and Cambridgeshire, where 600,000 acres of land have been converted by drainage from a swamp and a morass into one of the richest tracts of land in the kingdom,—a work which called forth the energies, at one time or another, of nearly all our great engineers. Old Rennie and his son Sir John have left their mark everywhere in these fens, in the canal-like drains, with their massive sea-sluices, and in the works carried out for the improvement of the great fen rivers, the Ouse, the Nene, and the Witham. Vermuyden, Smeaton, Telford, Mylne, Cubitt, Walker, Brunel, and others equally celebrated, have at various times been employed; and although still there is work in the fens for the engineer, yet its present state is an example of what may be accomplished in draining flat districts, and rendering efficient the whole interior drainage by the improvement of the outfall of a river. There are thousands of acres of bogs and low lands in England equally capable of improvement as these fens, and only waiting the aid of the engineer and the capitalist to turn them into corn-fields and pastures.

But, while it is necessary to good cultivation that nature should be aided in her operations by the skill of the engineer in removing the surplus water which falls on the land from the clouds, or rises from underground springs, advantage may be found in bringing on to the very field which has just been drained a copious supply of water from a neighbouring brook or watercourse, and either inundating the field in order that it may take up the fertilising matter contained in the water, or simply refreshing the parched soil by allowing the water to flow in certain regulated streams across it.

Irrigation is of more importance to tropical lands than to a climate like England. In the former cultivation could not be carried on without it; and talent and ingenuity of the highest order have been called forth in designing the vast works which are to be found in those countries. The frightful famine which recently occurred in India has stirred up the attention of the Government to this all-important subject; and for the execution of contemplated works, they require at this time the services of an increased staff of engineers. In Spain, again, from the earliest recorded times, irrigation has been practised. Even now, large works are being carried out, the result of those already completed being to turn a barren, desert land, into fruitful gardens and fields. The engineer engaged in these works in Spain is looked upon by the peasantry as a public benefactor, and when surveying for a new canal, will receive the greatest courtesy and assistance from the occupiers of the land over which he has to pass. It is unnecessary to refer to the irrigation works in Italy; they are too celebrated to require comment. Although the English climate and soil may not yield such startling results as are found in the countries already enumerated, yet we have sufficient proof that even in this country there remains a wide field for the skill of the engineer in improving the grass lands of the country by irrigation. In Devonshire water meadows have been in existence for a great length of time; and wherever in other parts of England similar works have been judiciously carried out, most successful results have ensued. By the diversion of part of the waters from a natural stream, and the application of it to poor grass land, at an expenditure of a very small sum per acre, the land may be made to yield heavy and abundant crops, which will pay tenfold the interest on the outlay. The sewage of some towns has also been successfully applied to the land by irrigation with surprising results; but whether this is the most serviceable mode of utilising the sewage of towns is a question which has yet to be settled by experience. The attempt to convert a barren tract of sands into productive lands by the application of the sewage of London, which formerly was worse than wasted by polluting the great river of the metropolis, is an attempt worthy of all success, and a method of irrigation which, if it answers the expectations of its promoters, ought undoubtedly to lead to its imitation on every part of the coast where there are sands available for the purpose. The enormous tract of barren land of which Aldershott and Bagshot Heath form a part, lying in the heart of England and so close to its capital, which by irrigation might be rendered productive, is a disgrace to the intelligence of the country, and affords an opening for any enterprising capitalist and engineer.

Besides the improvement to lands already in cultivation, there are other sources to which the attention of the engineers might be directed. Around our coasts are many thousands of acres of accreted lands, which are now covered by the tides, but which, if embanked, would form rich corn land. On some parts of the East Coast, the land thus available for reclamation is from one to three miles in depth, the greater part of which is covered with coarse marine grasses or samphire, and which, with an expenditure of ten to twenty pounds an acre, could be enclosed, and would, when reclaimed, grow annually on every acre sufficient corn to keep at least one family, and pay ample interest on the outlay. The Roman engineers, during their occupation of the island, saw at once the value of this land, and the embankments thrown up by them to exclude the sea, on the south and east coasts, remain to this day a monument to their skill and perseverance. The reclamations on the Lincolnshire coast, of the large Crown estate at Sunk Island on the Humber; and in the counties of Essex, Hampshire, and Devonshire; on the estuary of the Dee; and more recently those made by the Norfolk Estuary Company; added to the numerous in-takes which are continually being made by private proprietors, show the feasibility of this work, and ought to raise a feeling of regret at the national loss which is being incurred in not availing ourselves of this land for growing corn, which now has to be fetched from Russia or America, the very cost of the freight of which alone would pay for the necessary works of enclosure. When the Romans formed the old embankments, they made their criminals work under the supervision of the military engineers, and their soldiers were also employed at these and other engineering operations. This example might well be imitated by our own Government. Work would be beneficial to the soldier, as has been urged before in these pages, and the gain to the country enormous.

Thus for the civil engineer, then, there is ample room for employment in the improvement of the productive resources of the country, in works of drainage, irrigation, and embankment. To the mechanical engineer there remains the improvement which may be effected in the various mechanical appliances which are used in the cultivation of the soil, and principally in the application of steam. Farming becomes yearly more and more of a science, and depends on machinery to a very considerable extent for its successful working. The machines used on a farm are endless, and their manufacture is a most important branch of our national industry. The several eminent firms of agricultural implement makers have displayed ingenuity and talent of the highest order, and give employment to an immense number of skilled hands. The Irishman who comes over annually with his sickle to help to reap our crops, finds each year less to do, and sees that his services are being gradually superseded by the reaping-machine; the flail had to give place to the thrashing-machine worked by horses, which only performed the same operation in a more expeditious manner. The horse has given way to steam; and now the motive power, taking its own machinery and appliances from farm to farm, at one operation thrashes the corn, stacks the straw, dresses the seed, and then retires, leaving the farmer nothing to do but to carry his corn to market; and how long it will be before the four horses dragging the wagon-load of corn slowly along the highway, will be superseded by the traction engine, who can tell? It is the manufacture of the machinery which will assist in cultivating the soil, and increasing the produce of the land which is now more especially

to be considered. Numerous inventions have been brought out for digging the soil, and otherwise manipulating it; but the perfection of the steam-plough, or cultivator, appears to be the great desideratum. So far back as the year 1618, a patent was granted to David Ramsey and Thomas Wildgosse, for "kinds of engines and other profitable inventions, as well to plough up ground without horses and oxen;" and from this time forward nearly every year produced some new invention for either digging or ploughing by machinery, until the commencement of the present century, when steam was applied to this purpose, a patent being taken out in 1816, by Joseph Reynolds, for "ploughs and other implements used in husbandry to be moved by steam, heated air, or vapours." In 1837, another patent was granted to Upton for "an improved method of generating steam power, and applying the same to ploughing and harrowing and other agricultural purposes." These and many subsequent inventions, however unprofitable to the patentees, formed links in the chain that led up to the comparatively perfect machines of the present day. The really successful application of steam to the cultivation of the land may be said to date from the show of the Royal Agricultural Society, held at Lincoln, in the year 1854, when Mr. Fowler exhibited his steam draining apparatus; the idea being suggested by a practical farmer, Mr. Smith, of Woolston, that this machinery might be applied to the cultivation of the land. Slowly, but steadily, steam ploughing is making its way: Messrs. Howards claim to have made and sold in England and the colonies upwards of 500 sets of machinery; and Messrs. Fowler, in their circulars, give references to 300 persons or companies who express their satisfaction with the apparatus which that firm had supplied to them. The manufacture of the supply for our own and foreign countries, Egypt deserving especial mention, has given sufficient impetus to the trade to render it a distinct branch of engineering.

The systems now generally adopted may be divided into two classes, the "roundabout" and the "direct;" the former, the method generally known as Howard's; and the latter, Fowler's.

Howard's system is generally considered most suitable for small enclosures. The method adopted is to place the engine in one corner of the field, and to surround it with an endless rope, stayed at the corners by anchors. To this rope the plough or cultivator is attached, and attendance is required to move the anchors and other parts of the machinery as the work goes on. One objection urged against this system is the waste of power in moving the great length of rope required, and the wear and tear of the same, an expensive item in steam ploughing. Fowler's plan is to place a traction engine on one headland, the rope running from that to a drum attached to a self-acting moveable anchor placed at the other side of the field, the plough being made to traverse backwards and forwards between the two. Where the work is carried on to any great extent, so as to warrant the additional outlay, as in the case of the steam ploughing companies, the drum and anchor are resplaced by a second engine, the two engines alternately dragging the plough towards them, and uncoiling the slack rope. The engines employed are about 12-horse power. Beneath the boiler there is a large horizontal sheave or drum, 5 ft. in diameter, round which the rope is coiled. The plough or cultivator is a framework of iron balanced upon two large wheels. To each end of this framework are attached from four to six ploughshares, or cultivating tines; on reaching the end of the furrow, the part of the framework which was balanced is depressed, the other being raised, and the shares which were out of the ground, and which point in the opposite direction, are inserted in the soil and turn up the furrows on the way back to the other engine. To manage the apparatus three men are required,—two to drive the engines and one to guide the plough. The rate of speed is from three miles to three miles and a half an hour, and the quantity of work done in a day by the cultivator, under favourable circumstances, about ten acres. The cost of a single set of apparatus, with engine, self-moving anchor, ploughs, and scarifiers, may be put at 800*l*.

In the early days of steam cultivation, one of the greatest difficulties was found to be in connexion with the rope. One inventor tried chains, which, as may be supposed, from their weight and other mechanical objections, were found to be impracticable. Hemp rope could neither stand the strain nor the wear and tear over the ground, notwithstanding the aid of "porters" and other contrivances. Wire rope, although more durable, was found to be very expensive, owing to the frequent breakages. The great improvement which has been made of late years in the manufacture of steel has enabled that metal to be applied as a material for the purpose. The rope now used contains twenty-four steel wires, about one-twelfth of an inch in diameter, and of such wonderful strength and pliability is the steel that each of these wires, although it takes one hundred and seventy-six of them to form a section of 1 square inch, will bear a pull of upwards of a ton; and yet, although this wire is so stiff as hardly to be bent by the fingers, yet when force is applied it may be twisted round in a coil sufficiently small for all practical purposes. These ropes are at once tough, pliable, and enduring, very little liable to break, and, when broken, easily repaired. To this ingenious and marvellous invention, steam cultivation, in its present form, in a great measure owes its success.

The advantages of steam cultivation may be summed up as follows:—It enables the farmer to perform his tillage operations at the best season of the year, and to free his land more quickly and effectually from weeds. Tenacious soils are rendered more friable and porous, and good drainage promoted by the efficient manner in which the subsoil can be stirred by the aid of steam. The steam cultivator can be worked to advantage in an unfavourable season when it would be impossible to work with horses, and considering the depth to which the soil is stirred and the expedition with which the work is executed, it can be performed as cheaply as horse labour.

Numerous able writers in the *Times* and other public journals have, this year, testified to the advantage to be gained by steam cultivation. Mr. Bailey Denton, in an able letter, gives one very striking example of a farm at Blackheath, where three adjacent fields had been differently treated. The first, land not naturally fertile, being drained and steam cultivated, had a crop on it equal to forty-five bushels of wheat per acre, worth 18*l*. The second had been drained and treated in all respects similar to No. 1, with the exception of the ploughing, which had been done with horses. The yield was estimated at thirty bushels, worth 12*l*. per acre. The third field of similar land, but neither drained nor steam cultivated, had not more than twenty bushels, worth 8*l*. per acre. The difference here shown between steam and horse cultivation being 6*l*. per acre. Mr. Smith, of Woolston, who speaks with the authority of experience, having used steam for twelve years, gives, in a letter to the *Times*, some striking illustrations of its advantages, and the increased results obtained from the land by its use. At the time of writing his letter his steam cultivator was at work, following closely on the teams leading the corn out of the fields, smashing up the stubbles at a time when the horses on the farm were otherwise occupied, and at a rate which no amount of horseflesh, which a farmer could profitably keep, could accomplish: thus giving the land the benefit of a summer fallow in scorching and killing the weeds. To quote his own words: "I have looked round in all directions and can see more than a usual quantity of dead fallows, and no end of land in a state that will cost vast sums of money to clean it. Yes, and I can look over the hedge on to the best farmed land in the neighbourhood and see more twitch on a square yard of land than there is to be found all over my farm. Such are the results of steam and horse farming after wet seasons."

The first outlay for machinery is no doubt heavy, but taking Mr. Denton's statement as correct, that a gain of 6*l*. per acre may be secured by steam cultivation, and the statement is borne out by the report of the Committee of the Royal Agricultural Society, who quote similar statistics, on a farm having 140 acres in wheat the cost of the apparatus would be gained in the first year, including the price of the engine, which would be useful for other purposes.

Here, then, is an opening for enterprise and the profitable employment of some of the redundant money now in the market. It has been calculated that every 2,000 acres of cultivated land could find work for a steam-plough; and as encouragement, it may be mentioned that the companies which have been already established are rapidly making progress. From personal experience it can be stated that some of them have full employment nearly all the year round, and at times have more orders than they can execute. To the engineer an inducement is held out for the employment of his talents in the manufacture and perfecting of the machinery; to the capitalist, for a safe and steady investment of his money; to the farmer, from the increased profit from his land; and to the philanthropist, from the increased supplies thus produced for the food of the people and the addition to the national resources. W. H. W.

LIVING AND DYING IN THE THIRD QUARTER OF 1867.

Considering how short a time has elapsed since all statistics were voted a bore, and statistics of births and deaths the "flattest, stalest, and most unprofitable" of all statistics, it is, at any rate, a most healthy sign to find that many subjects, which can only be treated of through statistics, are at last beginning to assert in public interest that place which it is of such real importance they should hold. The Public Health is one of these subjects. There is no social problem to the solution of which it is more decidedly the duty of us all to lend our aid than the reduction to a minimum of the unnatural waste of life that has been for years going on around us, in town and country, through ignorance and neglect of the simplest sanitary laws. "Cleanliness," it has been said, "is next to godliness." Using the word cleanliness in its largest sense, only those who have seen the disease and misery in some of the worst parts of our unhealthy towns can fully appreciate the force of this axiom and its antithesis. But the public does now, we are convinced, take an interest in its health, and an honest rivalry has been established between towns, with regard to their death-rates, which has already, it would seem, resulted in increased sanitary activity all over the country.

We have before us the Registrar-General's Quarterly Return for the third quarter of 1867, and the insight it gives us into the vital condition of the country is, on the whole, encouraging, both as to past months and the future prospects of the sanitary measures which have been, and are being every day adopted, in both town and country, for the improvement of public health.

During the past quarter the excess of births over deaths in England and Wales was 81,793, averaging very nearly 900 per day. In the corresponding quarter of last year the excess was only 62,156. This result has been as much due to the increase of births as to the decrease of deaths. The births were at the annual rate of 35·2 per 1,000, a rate unprecedented in the third quarter of the year. The deaths registered in the quarter were 108,462, giving an annual rate of 20·1 per 1,000, against 21·8 in the corresponding quarter of 1866, and 20·3 the average rate in the corresponding quarters of 1857-66. Only twice in the eleven years 1857-67 has the death-rate in the third quarter of the year been lower than it was in the quarter just ended; in 1860 and 1862, when it was 17·2 and 18·0 respectively. The weather during the past quarter was, on the whole, favourable to health. The mean temperature at the Royal Observatory, Greenwich, was 59·7, agreeing almost identically with the average of the corresponding quarter of ninety-six years. The rainfall in the quarter was 11·3 in., and nearly 4 in. above the average of the same period in fifty-two years. Of this rainfall so much as 3¾ in. fell during the twenty-four hours of 25th July: this fall is almost unprecedented for England. There was scarcely any really hot weather during the summer, and the rain was abundant: the combination of these two circumstances, it will be found in comparing a long series of summer quarters, almost invariably produces a low death-rate. The remarkably cold and wet summer of 1860 was the healthiest on record.

In all the large town-districts of England and Wales, containing at the last census about 11,000,000 persons, the death-rate last quarter was 22·4 per 1,000, or 2·8 below that which prevailed in the same period of 1866, and slightly below the average of the ten previous corresponding quarters. In the remaining or rural population, amounting, in 1861, to rather more than 9,000,000, the rate of mortality was 17·0 per 1,000, or only ·5 below both the rate in the same quarter of last year and the average of the past ten years. It will thus be seen, therefore, that the principal improvement in the public health during last quarter was shown in towns.

This must be attributed in a great measure to the epidemic of cholera, which last year unnaturally raised the death-rate; but, as we shall find, the improvement was also conspicuous in many of the towns which did not suffer from cholera last year. It will be useful to examine a little in detail the figures relating to those ten large towns of England for which weekly returns are published by the Registrar-general, both because the condition of these towns and the measures which have recently been adopted for their sanitary improvement, or which have been neglected, as the case may be, are pretty generally known, and because the means of comparison with previous years is ready to hand.

These ten towns, including London, are estimated to contain at the present time a population of rather more than 6,000,000. In these towns the excess of births over deaths in the quarter was over 17,000, and the birth-rate equal to 36·8 per 1,000, against 35·2, the general rate in the whole of England and Wales. The death-rate in the ten towns was 23·8, or 3·7 above the rate for the whole country, and 1·4 above the rate in the entire town population above mentioned. Although in some of the smaller towns no doubt great sanitary shortcomings exist, we may feel sure that in these ten towns are included most of those which have in past years principally contributed to the excessive death-rates in towns.

In the following list these ten towns are arranged in the order of their rates of mortality during last quarter, from the lowest, and against each town appear the death-rates per 1,000 prevailing in the third quarter of each of the years 1865, 1866, and 1867. Returns from Sheffield and Newcastle-upon-Tyne were, however, not published in 1865:—

	1865.	1866.	1867.
Bristol	20·4	20·8	19·2
London	21·9	28·9	20·7
Sheffield	—	24·0	23·8
Birmingham	23·5	19·2	25·8
Hull	30·3	22·4	25·9
Salford	29·7	26·3	28·4
Liverpool	33·7	50·5	28·5
Leeds	31·7	31·0	28·7
Newcastle	—	31·6	29·5
Manchester	32·9	30·6	31·6

As the figures for last year were somewhat disturbed by the epidemic of cholera in many of the towns, a reference to those for 1865 materially assists in arriving at just conclusions as to the improvement which appears in some of the towns, and the conspicuous absence of it in others.

Take Liverpool and Manchester, for instance. Ignoring the rate for Liverpool last year, the rate has declined from 33·7 in 1865 to 28·5 this past quarter. In Manchester the rate may be said to have remained stationary. It is well known that the Liverpool Corporation has, with the aid of their medical officer, resolutely set to work to clean their Augean stable. It is as equally well known that, in Manchester, they have not yet made that first great step which is an earnest of sincerity in such measures,—they have not yet appointed a medical officer of health, though the step is determined on. Leeds forms a good example of sanitary progress. In 1865 and 1866 the rate was almost stationary, although no cholera appeared in the latter year; but, since the appointment of the present medical officer, the fatality from fever and other zymotic diseases has continually declined, and the death-rate in the borough has fallen from 31·7 in the third quarter of 1865 to 28·5 last quarter. This town, however, still stands low down in the list. Newcastle continues to enjoy an unenviable notoriety for its excessive death-rate. This is another of the towns which is without a medical officer of health. Birmingham, too, presuming, it would appear, upon the comparatively low death-rate which generally prevails there through the natural advantages which the town enjoys, still holds back from the appointment of such an officer. It is to be hoped, however, that the recent mortality in that town from diarrhœa and scarlatina (the latter of which is still fatally prevalent), and the retrogression which is shown in their death-rate for last quarter, will stimulate them to delay no longer. Bristol still occupies the post of honour as the healthiest of our large towns; and it is satisfactory to know that this position is fully appreciated and valued by the inhabitants. It is needless to say that this city has some time possessed the services of one of the most active and efficient of the at present small body of our medical officers of health. Even in Bristol, which enjoyed the lowest rate in the summer quarter of 1865, the rate has progressively declined from 20·4 to 19·2.

Without looking beyond what has been already achieved in Bristol, it is well to remember how terrible is still the waste of life that is going on in our large towns, compared with the number of deaths which would occur if the death-rate did not exceed 19·2 per 1,000 in our town populations. During last quarter, the saving of life in these ten towns alone would have been 6,063, of which 1,389 would have been in Manchester and Salford. We dare hope, however, that we may look for a still higher standard of health in towns. In many ways, life in town should be more healthy than in the country, and we see that the death-rate in the rural districts last quarter did not exceed 17 per 1,000. Salisbury appears by the present return to have attained a success, in her sanitary system, which but a short time ago would have appeared most wildly visionary; in this town the death-rate was 28 per 1,000 between 1841-50; 24 between 1851-60, and has steadily declined, until in the quarter just ended it has been only 10 per 1,000. This is indeed encouragement, if any be needed, to all those towns still hesitating to adopt sanitary reform, and to incur its necessary expense, from want of faith in the result.

THE EDUCATION OF THE WORKMAN.

The subject of this paper is, perhaps, not generally considered to be one upon which a painter has any right to discourse; but having in early life seen much of those trades of which the products have since been ennobled by the title of art-manufactures, and having devoted considerable time to the teaching of workmen engaged in such artistic occupations, I have very naturally given the education of the workman very earnest study. Moreover, a thorough investigation of the theories of art and education has shown me that their fundamental principles are the same,—that they should be influenced by the same formative idea.

The processes of modelling and of education are very analogous; it is in one case the lifeless clay, in the other the living earth which has to be formed in rectitude; but man can only be effectually remodelled by right reason working from within. The educator, therefore, commences the reconformation of plastic humanity, by the rectification of the understanding, in order that the ideal pattern, which he in common with the statuary, keeps steadfastly in view, may ultimately be realised palpitating with life.

Each successive International Exhibition has shown that English workmen,—art-workmen especially, require a more complete education than they have hitherto received. The present one, indeed, from all that I can gather from competent observers, has convinced them that some educational measure is imperatively and promptly required,—that British workmen may have a fair chance of successfully competing with their naturally clever allies. All the reforms in technical education which have been made since 1851, would appear to have been mere surface scratching instead of deep ploughing. To produce substantial and lasting results, there must be a radical change in the system of primary education.

You will, perhaps, trace through the lecture a leaning towards my favourite theory of "The Mean," of which the following four laws are the broad exposition:—

1. That the fundamental form of phenomena is quantitative.

2. That the mean is the *scientific* measure of rectitude and beauty.

3. That every aberration from the mean, either in excess or defect, must be compensated by an equal but opposite one. That any undue expenditure of vitality by one function, or group of functions, must be compensated by inaction in others; or by a system generally, by a period of absolute rest, otherwise organization will be impaired, the fund of vitality unduly drawn upon, and existence shortened.

4. That the lawful limits of departure from the mean are those of moderation, which permit variation in the tenor half of the scale of possible fluctuation.

This is, I believe, the substance of what science yields towards a system of ethics; and on a former occasion I showed how universally these principles obtain in the fluctuating phenomena of the entire solar system,—a theory, though perchance it be erroneous, often serves as a ground on which to marshal and parade one's facts; and I hope before I conclude that mine—if I may call it so—leads, at least, to some common-sense conclusions. If I appear to you to be somewhat *doctrinaire*, I believe you will find that I am also practical; and that I am *doctrinaire* only because no one can hope to be practically of any great advantage to others unless he be theoretically correct.

The art of education, as I have just now indicated is essentially *formative*, as essentially so as the arts of design; and I believe human nature to be as plastic to its hand, through periods of time, as the clay to the potter, and that in the plenitude of its mastery over means it will be able to develop whatever manner of man it wills. You will, I think, find, if you examine them, that most of the popular notions upon education have been derived from phrenology: hence tendencies, which appear to me to be only habits of thought and action, are elevated into faculties, and these so numerous that we can scarcely wonder at the anxiety of teachers and parents that our youth shall be cultivated by all the "ologies" that can be mustered. Let us, if possible, dismiss this notion for the present, and trace the natural order or sequence of our knowledge. Facts are first received by the outpost, observant senses; secondly, they are registered by the memory; thirdly, they are ordered, systematised, and utilised by reason; or, to describe the process by a lower analogy, there are the receptive, the retaining, and digestive processes. Now, it is no matter what kind of phenomenal knowledge it is, but it must pass through either the first, the second, or all these stages; and I should desire you to be impressed with this very natural inference,—viz., that if the senses be not correct *observers*, we can neither expect facts to be correctly remembered, nor just conclusions drawn from them. You will therefore be prepared for my return to this portion of my subject, and insisting upon the proper training of the senses. These three powers or faculties, observation, memory, and reason, should be of an equally apportioned excellence. For if the power of observation be cultivated to the neglect of the retaining and reasoning faculties, there will be a clinging to mere facts and minutiæ, a too facile credulity, disconnected thought, uncertain and inconsistent action. If memory be cultivated to excess and burdened with encyclopedial information to the detriment of the observing and reasoning faculties, there will be loquacity on all subjects, and a facile dispensing of second-hand knowledge; but should originality be attempted by this conformation of intellect, the data will probably be incorrect, its conclusions false. If the reasoning faculty be unduly stimulated and the powers of memory and observation allowed to lie dormant, it will be at fault in its premises, fruitful in reckless hypotheses, systematically wrong. The moral form or right constitution of these three functions, then, is when they are duly proportioned to each other, and which when thus constituted may be said to have the perfect capacity for investigating nature, for confirming or discovering truth, for receiving and communicating knowledge. Lord Macaulay says, when writing of the men of a certain eventful period of our history,—"The constitution of their mind was remarkably sound. *No particular faculty was pre-eminently developed*, but manly health and vigour were equally diffused through the whole." Or, as Shakspeare would have written,—"The elements were so mixed in them that nature might stand up and say, These were men!" Now, this equable development, these mixed elements, are precisely those moderate qualities indicated in the middle column of the following table; they are those, indeed, of the ideal man, whom a true system of education keeps steadfastly in view as its "pattern." It is that average or essential manhood divested of all the accidents of eccentricity, of aberration. Yet we may very frequently find the average man jauntily asked for, as if he were a common and very easily to met with creature, ready to answer and flock to advertisement by the thousand. Why, it is this manner of man, "in whom no particular faculty is pre-eminently developed," but the whole manhood, who has been at all times the true reformer and deliverer. He, of all men, is least likely to damage or wreck a good cause. It is because society is a conglomerate of disproportioned materials that the

State has to assume his functions, to harmonise and balance the whole.

TABLE OF MEAN AND EXTREME QUALITIES.

Excess.—Immoral, Destructive.	Mean.—Moral, Constructive.	Defect.—Immoral, Destructive.
Fast	Manly	Clownish
Rash	Courageous	Timid
Reckless	Prudent	Over-cautious
Extravagant	Liberal	Parsimonious
Buffoon	Wit	Dullard
Irritable	Good-tempered	Immobile
Gay	Good-humoured	Austere
Indulging	Temperate	Obstinate
Licentious	Free	Morose
Overbearing	Magnanimous	Mean-spirited
Assurance	Confidence	False modesty
Predisposition to Disease.	**Health.**	**Predisposition to Disease.**
Excessive exercise	Moderate exercise	Defective exercise
Immoral use of function	Moral use of function	Immoral disuse of function
Deformed organization	Moral organization	Deformed organization
Shortened existence	Long life	Shortened existence
Deformity.	**Beauty.**	**Deformity.**
Giant	Average height	Dwarf
Gross forms and features	Average forms and features	Defective forms and features
Disproportion	Average proportions, the beautiful or moral form	Disproportion

You will perceive, then, that the theory I am advocating is in direct opposition to the popular notion of cultivating and still further developing the strongest natural bias of a youth. Only attempt to carry out this notion thoroughly and consistently, and you will be convinced of its immorality. The strongest natural bias is always impatient of bit and curb; but give it head and spur, and it clean bolts with a man. The true object of education should be, on the contrary, to strengthen those qualities which may be defective and undeveloped. Both the intellect and the physique draw upon a common fund of vitality, the prodigal expenditure of which by either disturbs the desirable balance of the system. And not only is this the case as regards the general equipoise of mind and body, but by the extravagant use of any particular functional power of either. In fact, any disproportionate organization and activity in any portion of our natures destroy the just temper and harmony of their well-being. Having thus briefly given you my theoretical views upon the subject of education, I turn to the practical suggestions, which I believe, will be found perfectly consistent with them, and which, if the theory be rejected, may be judged of separately, as measures designed to improve the education of the workman and raise the quality of British workmanship.

Preserving the ideal of a well-balanced manhood before us, it will be seen to be of the utmost importance that the studies essentially necessary to its development should be separated from those which may be mere amplifications, specialities, or superfluities. These would appear to be,—1. The English language; 2. Ethics; 3. Arithmetic and Geometry; 4. Drawing; 5. Music; 6. Athletics. This was the course of training to be pursued in the primary schools which I proposed should be established throughout the country in a pamphlet which I published in 1851. Let me give the reasons for the foregoing selection. Those for the study of English and ethics are obvious. I will merely observe with reference to ethics that I use this word as a general title for religious instruction. For my own part, however, I lean to a rigorously secular system which would permit the study of scientific ethics only, or leave moral training to home direction. The studies of arithmetic and geometry are included, not for their more obvious utility alone, but also on account of the logical training they furnish. Nos. 5 and 6 in our list are drawing and music; of these studies I have more to say, having just now, as you will perhaps recollect, drawn your attention to the importance of educating the senses. Let us bear in mind, that through the eye and the ear we cheifly bear witness to what is passing in the world; and teachers of drawing and music only know, to the full extent, what false witnesses these senses are before they are properly cultivated. Let it not be forgotten, too, that it is upon these generally uncultivated senses that character and life are frequently at stake. The desire to obey the command,—"Thou shalt not bear false witness,"—may sometimes be strengthened, but evidence cannot be guaranteed upon oath. If a witness be an imperfect observer by eye or ear,—and such he commonly is,—in default of the educational training we insist upon, he will conscientiously swear to the absolute truth of his erroneous impressions. I have on several occasions pointed this moral in teaching. "If," I have said, "you misapprehend the truth with regard to the model immediately before you, and biding your time for deliberate inspection, how can you expect to observe, and accurately record the fleeting facts and occurrences of every-day life?" It is not, however, in the witness-box only, that trained senses are required, but for the appreciation of harmony and beauty in nature, to preside watchfully over all kinds of work, and to endow the manufactures of a nation with that permanent excellence which will insure their appreciation throughout the civilised world. I am speaking now more immediately of the education of the eye. I will venture to say that you would find that painters and sculptors would be more readily inducted to the exercise of any craft, could more readily turn their hands to any kind of work, than any other class of the community; and why? not only because their arts require the greatest dexterity of hand, but because they see better.

There is a certain affinity between all true work, be it of art or manufacture. The system I propose I believe to be the only true way to produce a nation of unrivalled workmen: depend upon it all the study of the physical sciences in schools, now so much insisted on, will never effect that. The study of the sciences promotes invention, extends our command over means, but does not materially and directly contribute to the development of the student's nature. And when I propose a course of study of drawing and music in these schools, I do not mean that drawing is to be practised in inconvenient and ill-lighted class-rooms, furnished with a cast or two and a few flat copies, for an hour or two in the course of the week, but that the class-room be properly designed for the purpose, well found, and that a fair share of every day's time be devoted to the study. I cannot so well speak of what is required for the proper study of music, but I would have the arrangement as thorough and complete. As the localities which would be fitting for the establishment of these schools for the workmen's children would very probably be also convenient for the workman, I would have these school studios, or others in close proximity with them, open to him in the evening, classes established for the study of the sciences, &c. Think of the effect such measures would produce upon manufacturing skill; what new and healthful sources of pleasure they would open to the workman, and how they would contribute to raise the whole status of art in the country; for as the toe of the mechanic "gibed" the heel of the artist, he, too, would have to move forward.

The last subject enumerated in our scheme of primary schools was physical training; but of this presently. The system proposed, therefore, provides for the appropriate expression of ideas by the study of English; for correct observation and the appreciation of beauty and harmony by the studies of drawing and music; for the exercise of right reason by the mathematics; and for the moral and physical health by ethics and athletics. If, then, this course of training be sufficient to educe the essential qualities of manhood, it is the fundamental system on which any extension of study in the direction of science and languages might be superimposed. The man is intellectually potent when he is able to observe, remember, and reason rightly. The formative system, I think, commends itself by its simplicity, and simplification in education is of the utmost importance to the workman; for his children cannot drone at school through long periods of time, and require, more than those of any other class, that the time which can be devoted to schooling shall not be wasted on what is not immediately necessary or what is inessential. General knowledge could afterwards be obtained and superadded in this and similar institutions. The scope of the local Schools of Design could easily be widened so as to embrace the larger plan proposed, and the new buildings about to be erected here* are arranged in a way which would favour the establishment of a school such as I have proposed.

I will now return to the subject of physical exercise. In most crafts this is amply provided for the workman by the occupation itself, but not always of a kind calculated to improve the symmetry of the human frame. The subject on this account is one of great importance to the workman. There are some employments necessitating some particular list of the body, cramped position, &c., which are prejudicial to form and health, and which if it be not possible to mitigate by mechanical contrivance might be counteracted by judicious athletic training. And not only on this account, but that we have all to recollect that in the present state of the world true men must be militant; for we know not if the work of progress and the institutions most dear to us may be forcibly assailed; and if they be not, and the world move forward in the tenor of reason, we shall learn that symmetry of form is an index of a really progressing, healthy, and noble people. For however opposed it may appear to commonly accepted notions, rectitude of life does restore and preserve the beauty of a people: it may be a slow, but it is a sure and certain result. Great changes in the organization and form of living beings can only be gradually effected. If the deformation of nature be not the result of erratic action, what is its cause? The consequences of the irregular and careless treatment of machinery are well known. How much more, then, are the wonderfully delicate structures of living organisms affected by ill treatment? A variety of causes tend to shake the nerves, dwarf the bodies, deform the limbs, and distort the features in the present competitive haste of life, so fraught with mischief, morbid ambition, highly wrought nerves, unhealthy occupations, vice; and we may be certain that social disorganization will gradually increase till a higher and healthier purpose than the mere attainment of the power of wealth, supervene, and produce remedial reaction. We all know that physical exercise has long been considered an important branch of education by the founders of the Working Men's College; to them, indeed, I believe we may attribute the present popular recognition of the value of athletic sports, but as the new hobby is now in danger of being ridden to ridiculous excess, I venture to offer a few remarks in reference to its scientific direction. If the mean be accepted as the scientific measure of that stature and fulness, of that perfection of the human form, which has neither excess nor defect, of that ideal to which men are to gradually go on, and grow up unto, by the moral or just use of every function of their being, of that pristine symmetry which has been marred by error, and which is only likely to be restored by mind dominating body;—I say, if we accept this measure of rectitude, there will be no danger of muscularity being over-developed for the sake of being stronger in mischief, or for those purposes which had so long prejudiced and degraded athletics in the eyes of the public. In the exercise of the body this great law of formative ethics should be remembered, viz., that as vitality is a fixed quantity, no one faculty, or group of faculties, can be excessively exercised or developed, but at the expense of others, prodigious mental exercise at the expense of the body, great muscular effort by diminution of power of thought; and if the vital power be unduly and continuously directed to either of these purposes, abnormal deformation and disproportion ensue. The danger that has to be guarded against in the institution of athletic sports is, lest the true object of education be lost sight of, and an excessive development of thew and sinew be educed, instead of that *moral form*, in which all the faculties are co-ordinated, and from which any departure implies deformity and predisposition to disease. Rewards, in my opinion, should never be offered for excessive feats of strength, but for general capacity of mind and body. I believe, if it were practicable, that it would be of greater advantage to human progress, to crown perfect form, than feats of strength. The Greeks, who of all people, perhaps, best understood the training of men, and consequently those proportions in which beauty of form inhere, had intellectual as well as physical development in view in the institution of their Olympic Games, which had a dignity of purpose wanting to the Roman amphitheatre, in which men, brutalized by strength, contended with brutes. The foregoing operations are perhaps, the more necessary, because some o the recently-established athletic associations have adopted the device of a figure of the Farnese Hercules, with the legend, *Mens sana in corpore sano*. Now this antique statue is an embodiment, as painters well know, of muscular

* The Working Men's College, where this paper was read.

excess, a mountain of physical strength capped by a weak summit. Such an embodiment is wide of the mark demonstrated to be the standard of manly beauty, in which all the faculties of mind and body are duly apportioned. The *mens sana* would be impossible in an incarnation of the Hercules; such a being, from his mental immobility, would only be useful as a club-bearer or porter. This device of the Hercules shows that the true objects of muscular training are not yet popularly understood. It has been raised as an objection to the formative theory that the power of remoulding human nature is very limited; but we all know that very great changes in the human form can be effected in the wrong direction, let us try if as much cannot be done in the right. We also know what changes knowledge can effect in other forms of being over which man exercises greater control. The true intellectual and physical conformation of man is, doubtless, the increasing purpose which, as Tennyson expresses it, is widening with the process of the suns. Let us give our energies to it, without minding how long it will take to accomplish. It takes a long time to learn how to be, and to be men. You may, perhaps, think this lecture has been less special than its title promised. But are we not all workmen who must set before ourselves the self-same ideal, and keep it stendfastly in view? To be men, I take it, is alike the ambition of the artisan and the peer.

If you think I have anywhere expressed myself too authoritatively and positively, set it down to the earnestness of conviction. I know you would rather forgive me for being a little too positive than for not being in earnest.

W. Cave Thomas.

ASSOCIATED ARTS' INSTITUTE.

We have before us the programme of the current session of this society, showing that several very interesting papers are promised, and we would take advantage of the opportunity afforded to draw attention to the existence of a society which offers considerable advantages in its bringing together the younger members of the three professions of architect, sculptor, and painter, and affording them an opportunity of yielding one another that mutual assistance and co-operation which history has shown us to be necessary for the production of true artistic works. The "Associated Arts Institute" meets at the House in Conduit-street on Saturday evening. The society now numbers 120 members, and Professor Westmacott, R.A., is its president. The essays or papers read are short, and a discussion on them afterwards is one of the more important objects held in view by the founders of the society. The subjects given for sketches are so selected that it be possible for any member, whether painter, sculptor, or architect, to contribute designs. There is also a class of honorary members, who are either amateurs or non-residents in town. We are disposed to think that such a society offers considerable advantages, and that publicity only is required to induce young students to enrol themselves as members.

OPENING MEETING OF ROYAL INSTITUTE OF BRITISH ARCHITECTS.

The opening meeting of the new session of the Institute took place at the House, in Conduit-street, on Monday evening last, Mr. Charles Barry, one of the vice-presidents, in the chair.

The Chairman, in terms of regret, announced the obituary of Fellows and Associates deceased since the close of the last session, in June last. Chevalier Heinrich Ferstel, Professor the Chevalier Friedrich Schmidt, and Herr Carl Hasenaur, eminent architects of Vienna, were elected by acclamation honorary and corresponding members of the Institute, their claims to that distinction having been stated by Professor Donaldson, the hon. secretary for foreign correspondence. Mr. Godwin referred to the Chevalier Ferstel and Chevalier Schmidt, from his own knowledge, as having played an important part in bringing about the present condition of ecclesiastical architecture in Germany, in conjunction with Herr Vincent Statz, who was already on the list of foreign honorary members. He regarded this as a well-merited distinction to those gentlemen.

Professor Donaldson announced the liberal donation of 100*l.* by the president, Mr. Tite, M.P., towards furnishing the library of the Institute with architectural works,—more especially those of foreign authors of great value, which it does not at present possess, and a special vote of thanks for the same was accorded to Mr. Tite.

Mr. Godwin mentioned the fact, to which we have elsewhere referred, that the Governor-General of India had issued a commission, for the purpose of ascertaining the best means, and acting upon those means, for the preservation of records of the numerous architectural remains which abound in our Indian empire.

Professor Donaldson expressed a hope that a similar spirit would actuate the Government with regard to the architectural remains of this country. He mentioned that, on the occasion of a recent visit to Wales, he found the castles of Conway, Carmarthen, Beaumaris, and Harlech in such a state of dilapidation as to threaten their entire destruction; which, he said, might be prevented by a little judicious repair with the materials on the spot. He had taken upon himself to communicate with the First Commissioner of Works and Buildings on this subject, and received a reply stating that the castles held under the Crown did not come within that department. By means of another letter he learnt that they were under the control of the Woods and Forests. He thought it specially became this Institute to take what steps they could for securing the proper preservation of the old castles and similar buildings of the country; and added that he would be prepared to place a motion in the hands either of the president or Mr. Beresford Hope, for a return of all the buildings held under the Crown since the year 1600, stating their present condition and by whom and under what terms and conditions they are now held. Until they had a return of that sort, the ancient architectural monuments would not be properly preserved.

The paper read was a "Memoir of the late Mr. Charles Fowler" (Fellow), written by Professor Donaldson, to some parts of which we may return. At the conclusion of it,

Mr. Edwin Nash said he knew Mr. Fowler sufficiently to form a very high appreciation of his works and character. As an instance of that gentleman's kindness of disposition, he mentioned that on one occasion he applied to him for some information respecting one of his works, when Mr. Fowler not only furnished the information required in writing, involving a considerable amount of labour, but added to those labours a number of drawings, which he specially prepared. He could not refrain from mentioning it on this occasion, and he did so with a view of encouraging intercommunication between themselves as a valuable means of promoting the interests of the profession as well as a personal gratification to themselves.

The chairman having risen to propose a vote of thanks to Professor Donaldson for this paper,

Mr. Godwin said he thought it would be a pity to allow the observations on the subjects brought forward by Professor Donaldson to terminate so abruptly as they appeared about to do, inasmuch as there were so many texts opened to them in the papers, that they afforded matter for half a dozen sermons. He had no intention of preaching a sermon on those texts himself, but there were one or two points on which he begged to say a very few words. For example, he was not able to agree with Professor Donaldson's statement, that there was a difference of opinion amongst medical men in the present day on the subject of having parallel wards, side by side, in hospitals. Anything more preposterously bad than such an arrangement as that could not be conceived. He spoke from long consideration of the subject, and from knowing the opinions of many of the most eminent medical men of the day upon it. It was impossible, with such wards opening into a corridor, as they usually did, to prevent the spread of an "hospital atmosphere," which there could be no doubt was highly detrimental to the recovery of convalescent patients; and in many of the old hospitals the inmates had died more rapidly, probably, than if they had been placed under a hedge, covered with a blanket, and decently fed. That was the opinion of men of long experience in the matter, in which he fully agreed. He should be very sorry if the expression in the paper should lead any architect to believe that if he submitted a design which included double wards side by side it would stand a chance of being selected. He was glad to think, he might even say he was proud to think, that no such design would now be selected. He had laboured for some years in endeavouring to spread a knowledge of the advantages of the pavilion principle in hospitals, and he was happy in the belief that the double ward system would not now be admitted in the construction of those buildings. With regard to competitions he was glad to hear Professor Donaldson's observation—he put it very mildly—that the instructions to architects, instead of being more precise, should rather be left more open. It was a very difficult thing, he knew, to obtain a decision without precise instructions that would give satisfaction to all; but he was quite sure that instructions of a general character were best calculated to bring out the talents of architects, and more likely to lead to the production of good buildings. The restrictions under which architects were usually placed precluded the exercise of their own opinion and judgment in any case. It was of the utmost importance that the Institute should take up this matter, and discuss the four propositions which Professor Donaldson has laid down, with the view of arriving at a more general understanding in respect of competitions. A good deal might be done towards improving competitions by the profession itself. There was, as they all knew, a great disposition to cavil and find fault, often very necessary; nor was there any alteration in that respect when the committee or municipality called in professional men to assist them, the only difference in that case being that the referees came in for the abuse instead of the committee or municipality. Committees would feel that they might as well exercise their own judgment, and allow local prejudices and favouritism to have their weight; because there was the same abuse bestowed whether impartial persons were called in or not. Let the profession give their brethren credit for honesty of intention, and not assume a "job" without at least some evidence of the fact. He would, in conclusion, say one word with reference to their excellent friend, the author of the paper. They must all agree that considering his recent and still existing indisposition which precluded him from reading his own paper that evening, and other circumstances, together with the weight of some years upon him, the time and labour that he gave to the matters of that Institute, and for the benefit of the profession at large, were beyond all praise. He knew no man so ready ever to come forward to bear testimony to the good qualities and abilities of a fellow-labourer, whether he were alive or dead. In this respect especially he deserved the gratitude of all, and he was sure there were none present but would hope that when they died they might have such a friend to tell their story.

Mr. Digby Wyatt remarked that it was hi good fortune to have known Mr. Fowler for upwards of twenty years. He had also seen most of his works, and he confessed they had all impressed him, as his personal acquaintance with him had done, with a profound respect for that gentleman's character. There was a degree of uprightness which was impressed upon him both in his life and in his works,—a straightforwardness of purpose of which any architect might be proud, when manifested alike in his life and works. Professor Donaldson had dwelt principally upon the architectural phase of their late friend's character, and had not touched upon the domestic phase of it. Happy in his every relation of life, Mr. Fowler was a man to be respected in all things; and in every piece of professional business, small or large, with which he was connected he never issued from that business without carrying with him the respect of his employers and the esteem of those who laboured with him. Mr. Wyatt fully endorsed all that had been said with regard to the great merits of Professor Donaldson and his exertions on behalf of the Institute, and the profession at large.

The Chairman, in proposing a vote of thanks to Professor Donaldson for his able memoir, expressed his unqualified concurrence in all that had been said of him by the preceding speakers, adding, that he had set an example to the younger members which they would never forget, and which he trusted they would all endeavour to follow.

The vote of thanks having been passed with acclamation,

Professor Donaldson returned his acknowledgments for the kind manner in which the proposition had been received by the meeting. He said if he had yielded to his own feelings he should have said more about Mr. Fowler and the

valuable qualities he possessed; but he felt assured his late esteemed friend would not have wished to have one word more said about him than others might be disposed to accept; and he had forborne to treat of his private character because there was so much in his professional career; such integrity, high honour, and straightforwardness, that he felt there was in that career alone sufficient to occupy their attention for that evening, as he hoped and believed, with interest and not without instruction. With regard to the young members of the profession he had written a few words, which he hoped would come home to them, so as to induce them to greater exertions, to infuse more energy into them, and lead them to sympathise in the feelings with which they looked upon their art, in which respect more was expected from them than they had yet done. It was from their ranks that the vacant places which were left must be supplied; and he hoped they would not only do honour to their profession, but also to their country.

It was unanimously resolved that the honorary secretary be requested to convey, in suitable terms, the sincere condolence of the members of the Institute with Mrs. Fowler and her family on the great loss which they have sustained.

THE NEW PUBLIC OFFICES FOR LIVERPOOL.

It is now some years since the corporation of Liverpool resolved to erect public offices in the town worthy of the importance and standing of the great northern port, and in which all their numerous officials should have accommodation sufficient to enable them to transact the business of their respective departments. The want of such offices had long been sorely felt; the inconvenience and expense of having the corporate servants dispersed about different parts of the borough became more apparent day by day; and the urgency of the case having become irresistible, the local parliament commenced what may, without exaggeration, be called a somewhat gigantic undertaking. That was some five or six years ago, but, owing to a number of unforeseen circumstances—the chief being its inability to obtain the particular kind of stone required—the work dragged slowly along, and for awhile matters were almost at a standstill. The huge pile, but half complete, became for a length of time the subject of many a bitter comment, and afforded a capital illustration of the slowness with which corporate bodies are popularly supposed to proceed with any great public work intended to meet a great public want; but about a year ago matters were pushed on with considerable vigour, and the large building is now all but ready for occupation. The site chosen is in Dale-street, and is admittedly one of the best in the town, being situated in the busiest of the many busy streets of Liverpool. The building, which abuts considerably too close upon the public pavement, thus marring the general effect, presents a bold and substantial appearance. In size it is only inferior to St. George's Hall.

The Public Offices, which in form represent a quadrangle, cover an area of about 4,800 square yards, and have a depth of about 196 ft. The style is Corinthianesque, treated very freely. The height of the building to the upper cornice is about 60 ft., and to the roof of the pavilion between 80 ft. and 90 ft. A tower, to a height of about 200 ft. rises from the centre of the building, and its elevated position renders it conspicuous a considerable distance off. The frontage is, of course, in Dale-street. There is a large granite-framed doorway in the centre, and on either side of this are massive stone columns projecting so as to form a porch. At intervals along the front other columns are placed, and the wings at each end take a tower form, covered by a pavilion roof. Each angle of the building is similarly completed. The top story is constructed as an attic, and single figures, representing different branches of art and science, occupy positions upon broken entablatures. The caps of the columns which support the front are not formed after the usual acanthus model, but from designs supplied by English ferns. It is proposed to place a clock in the tower, which is to be furnished with bells to strike the quarters, and which is to be regulated by electricity. The building has five main entrances, and there is plenty of vacant ground in its rear; which fact makes it the more to be regretted that the structure was not put much further back from the thoroughfare in Dale-street.

Round the entire building within runs a broad corridor with a groined roof, from which access to all the offices can be obtained. The ground and upper floors are similarly arranged, and at each entrance a stone staircase leads from the one to the other. The Tax Office is the most capacious room in the building, and it is 40 ft. by 60 ft. It is placed in the centre of the pile, and is lighted from the roof by means of skylights. The woodwork on the ground and first floor is all of oak, and on the upper floor of pitch pine; the whole of the work being very substantially done. There are upwards of 100 rooms; the corridors are lined up to a given height with tiles of a handsome pattern; while the staircases are lined with enamelled plate. The principal offices will be on the ground-floor; the clerks in connexion with different departments occupying the upper floors. A hoist travels from the basement to the top, having a communication with each floor; and the building is warmed by means of Price & Co.'s hot-air apparatus. The eastern portion of the building is appropriated to the departments under the direction of the borough engineer, the treasurer, the medical officer of health, and the officials at present having rooms in Cornwallis-street. The western wing, on the ground-floor, is assigned to the town clerk's department, with the exception of five distinct rooms, each 34 ft. by 18 ft., which are set apart for committees; and upon the second-floor will be the muniment-room, and the offices of the borough architect and surveyor, the water engineer, and the deputy town-clerk. The different parts of the building will be communicated with by means of speaking tubes and electric bells. The land and furniture apart, the cost of the building will be somewhere about 100,000*l*.

We need only add that the design was originally made by the late well-known architect and surveyor to the corporation, Mr. John Weightman; that the builders are Messrs. Holme & Nicol, Messrs. Haigh & Co., and Messrs. Parker & Son; and that the new borough architect and surveyor, Mr. Robson, has personally superintended the erection of the building, and has made such modifications in the first design as seemed desirable.

BIRMINGHAM ARCHITECTURAL SOCIETY.

A meeting of this society was held on the 31st ult., at the Town Hall Chambers, Mr. J. J. Bateman, president, in the chair, when the session was opened by an address from the president. In the course of it he said, as to the Paris Exhibition building, that although in arrangement well adapted to its purpose, it was of all iron and glass exhibition buildings the very ugliest; indeed, it was scarcely possible to conceive a building erected in the present day so devoid of any attractive feature. Here Mr. Bateman remarked how very little we, in Birmingham, have attempted in the adaptation of iron in the construction of buildings, the town being so favourably situated for the development of designs in that material. After paying a passing tribute to Messrs. Payne & Maw, as the authors (though as yet unrecognized by the authorities) of the plan published in the *Builder*, from which the design of the building was taken, Mr. Bateman proceeded to speak of the Exhibition itself, and said it appeared to be the accepted verdict that England had not successfully competed in the fine arts, and there was little doubt of this being the case in historical painting. In our own department of the fine arts, he said, we appeared to have lost an opportunity of offering to France that of which she stood in need—a lesson in ecclesiastical architecture. Noticing the care and attention which French architects pay to the plan, Mr. Bateman said here we could take a lesson ourselves, in making the plan a more important feature of the design. No one could examine a French design without being struck with the greater amount of study given to it than we were in the habit of bestowing. The French plan was as much a picture as the elevation, and generally more carefully treated. We should also profit by studying from French designs the art of tinting, the beautifully transparent toned colouring of their geometrical elevations and plans, preserving clearly every line and detail of the design, and at the same time heightening the effect of the composition to the utmost. Next Mr. Bateman referred to the much-praised practice of the French architects in making very large geometrical drawings as studies for their designs. However advantageous this system of colossal drawings might be to the painter, he totally disagreed with the practice as applied to architecture, as having an inevitable tendency to produce a want of boldness and a littleness in the detail of executed work, arising in part from the fact that they could not draw the building full size. While admitting that, under Louis Napoleon, Paris had become a magnificent city, Mr. Bateman remarked that there was little force or vigour of design, which their street architecture appeared to him always to want. In two particulars we might profitably study their buildings: firstly, the undisguised and effective treatment of the roof, which we resorted to all expedients to cover up and hide; and, secondly, the beauty and delicacy of their sculptured detail. Being in a transitional state, we need not be afraid of interfering with the nationality of our school of architecture; we should, therefore, be ready to adopt, from whence-ever it might come, any suggestion which might aid us in producing a worthy, national, practical school of architecture.

RAILWAY MATTERS.

The underground railway has carried in six months' time over 12,000,000 passengers, or about three times the population of London. The actual number transported over the line since its opening in January, 1863, is about 70,000,000. The line is only three miles and three quarters long, and was constructed at an enormous cost, but makes good annual returns in dividends.

A tube, intended for use in constructing pneumatic railways, has been patented by Mr. A. Beach, of New York, U.S. It is composed of sheets of wood veneer, about one-tenth of an inch in thickness, laid one over another in alternate transverse spirals, and firmly glued together, forming a shell about 1½ in. in thickness. The full-sized tube is cylindrical in form, about 8 ft. in diameter, and is put together in sections of about 5 ft. in length, with overlapping joints. The car is nearly cylindrical in form, running on wheels upon a track laid on the bottom of the tube. Around one end of the car is a disc, fitting as closely to the interior of the tube as it may without creating too much friction. The current of air pressing upon this impels the car. The impelling current in this case is created by a fan, shaped like an ordinary marine propellor, which is placed in one end of the tube, and driven by steam or any other power. Letter-boxes are to be placed at convenient points along the line of the road—in a town they might be at every street corner—the boxes being divided into two compartments, marked for letters going in either direction. The boxes are so arranged that, as the proper car passes, the bottom of the box opens and deposits its letters in a box of the car.

The thirty-sixth half-yearly general meeting of the Great Indian Peninsula Railway Company has been held in London. The report was adopted, and the chairman in reply to a question stated that the probable cost of the restoration of the works which had failed would be about half a million sterling.

PROPOSED NEW ROAD FROM BELGRAVIA TO SOUTH KENSINGTON.

We would direct attention to the following communication:—

One of the most characteristic features of the age is the marked improvement which has taken place in our great city. Wealth, population, and civilization were always connected with London, but the beautiful and picturesque have long been wanted. Our noblest temples of piety and magnificence are buried in obscure places, and deprived of their otherwise commanding effect by miserable dwellings surrounding them. It is only of late years that we have erected a suitable senate-house for a parliament which has existed for 1,000 years. But the spirit and sense of beauty, combined with utility, which has made Paris the "city of the world" has at length come amongst us. It was the boast of a great Roman emperor that he found Rome of brick and left it of marble. Let it be the boast of our age that we found London ugly and left it beautiful.

ANCIENT BRONZE MEASURE, OCHSENFURTH: A.D. 1403.

In your most valuable journal you have repeatedly urged the necessity of improving our town thoroughfares and approaches. The Belgravia and South Kensington new road is a scheme which is considered not only likely to be commercially successful, but also pronounced to be of immense utility as a London improvement.

A complete barrier is now presented between Prince's-gate, on the one side, and Belgrave-square on the other: such a road as the above would at once bring these favoured regions into direct communication with each other, thereby uniting the district foreshadowed as the *future* centre of opulence and fashion with that which is at present so, to the improvement of the entire surrounding neighbourhood and the immense enhancement of the value of local property.

The communication in question will pass in a direct line from the part of Belgrave-square opening into Pont-street to the Cromwell-road; and it is proposed to render this not alone a mere thoroughfare between these two favoured points of our metropolis, now almost entirely cut off from each other, but to give to it the most imposing and attractive character, presenting a *straight mile*, such as no other city in Europe can boast, and giving to this quarter of our capital a grandeur of effect *par excellence*, of which she may be justly proud.

To accomplish this, and at the same time ensure sufficient privacy to the spot (there is already an authorised new road to the right of this from the Brompton-road to Eaton-square, over which the heavier traffic would pass), triumphal arches of allegorical design, honouring Fame, Glory, and similar attributes, might be erected at each end; the one opposite Cadogan-place in Sloane-street, directly facing Pont-street, the other at the opposite end, and in a line with Cromwell-road. These would open upon a Broadway sufficiently wide to allow in its centre and throughout its entire length an ornamental garden, supplied with fountains and statues, and bordered on either side by rows of palatial mansions, after the style of the most attractive Boulevards of Paris, thus offering a striking feature of interest to our metropolis, regenerating the West-end, and at the same time conferring upon us a national *prestige* for awaking *practically* from a long lethargy, and at once give our chief capital rank by the side of the most tasteful cities of modern Europe. Opening up also, as this great artery would, the Government property at South Kensington, and especially the vast and important site of the Exhibition of 1862, as well as forming a direct line of communication between the Royal residence and a spot so associated with the memory of one who was ever the first to recognise and promote any enterprise of a great and useful nature, it cannot be doubted that such an improvement would meet with the highest countenance and favour, and also forward the future prospects of the West-end to an immense extent.

"The Birdcage Walk" would only be broken by the intervention of a few yards at Belgrave-square. A magnificent continuity of route westward from the Houses of Parliament, the Thames Embankment, Westminster Bridge, &c., would be developed to this important point, thus effecting an improvement worthy of the age, alike useful and ornamental to this aristocratic quarter of our great city.

South Kensington being now the cradle of science and art, in addition to possessing so many elements of attraction as it does in its Museum, Horticultural Gardens, proposed Hall of Science, and ere long its Royal Academy of Music, such a thoroughfare or Boulevard as this really would make, ought to be named the "Boulevard of Arts," and the statues, placed at equal distances throughout its length, should be those of our greatest Englishmen, so many of which, now scattered in every direction, might here be appropriately concentrated, thus heightening the national character of the undertaking, and improving the source of proud gratification with which our countrymen might view so magnificent a triumph of their taste and skill.

A BELGRAVIAN.

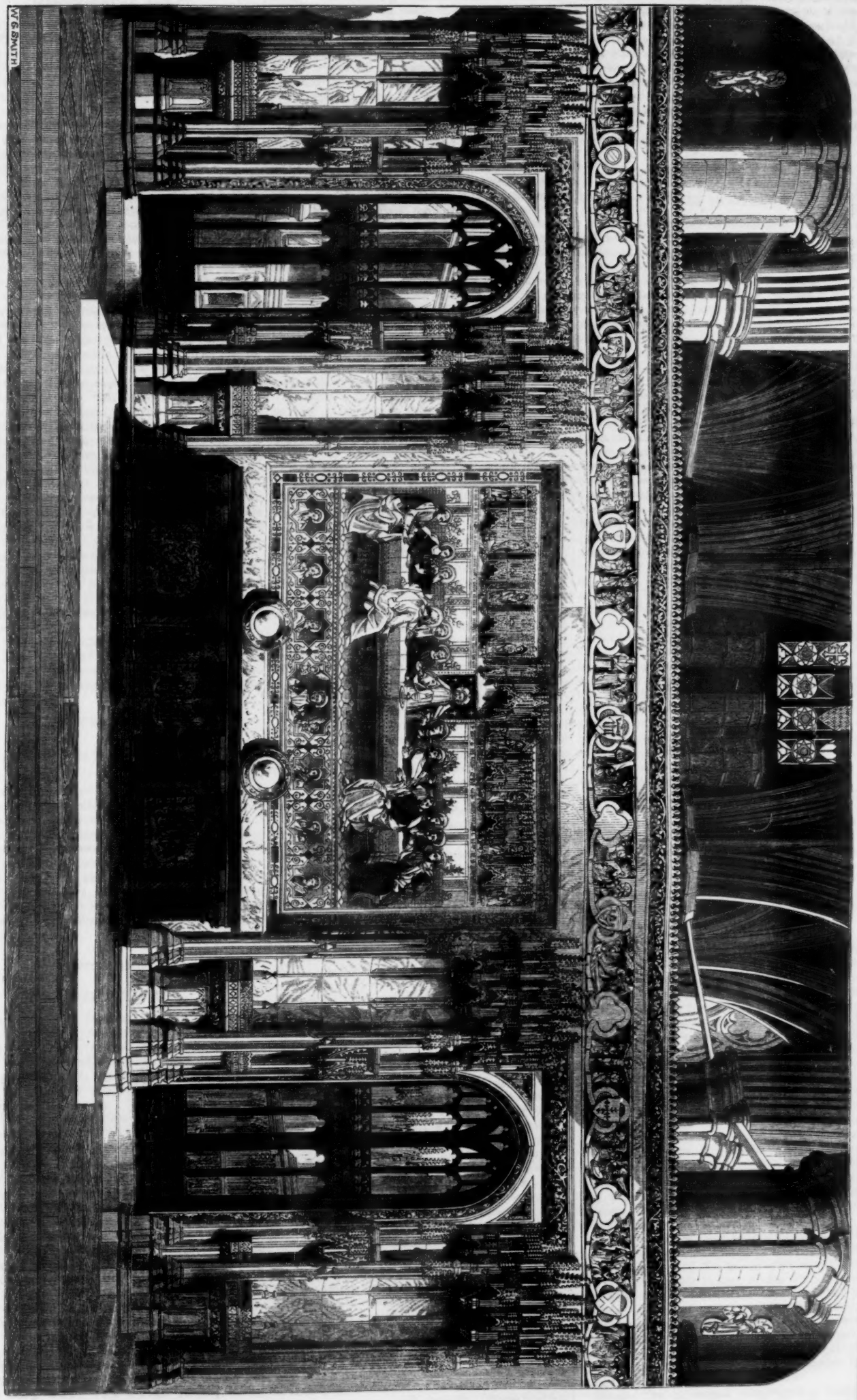
*** The proposed road has our heartiest concurrence, and should have the aid of the Privy Council Department of Art and Science. A considerable part of the line is at present uncovered with houses, and we are informed that the required capital, or greater part of it, is forthcoming.

ANCIENT BRONZE MEASURE, OCHSENFURTH, GERMANY.

THE accompanying engraving represents the "Eimer" measure still used in the town hall at Ochsenfurth. It is cast in bronze. On the rim is the date ✠ "*Anno dimini M° CCCC und III.*" 1403. The mixture of German and Latin in the inscription is very singular. The subjects represented in low relief are the "Crucifixion," on the first and third compartment, and "St. Michael and St. Lawrence" in the second and fourth. The handles are curious, but very convenient. The following are the dimensions of this peculiar relic of antiquity:—

Height	20 in.
Diameter	22 in. at rim.
Figures	6 in. high.
Thickness at rim	2 in.

This measure is preserved in the council chamber of the town-hall. On a future occasion we shall give drawings of other remarkable specimens of ancient furniture in the same room.



THE REREDOS AND ALTAR-TABLE, WESTMINSTER ABBEY.—PROFESSOR G. G. SCOTT, R.A., ARCHITECT.

NEW REREDOS AND ALTAR-TABLE, WESTMINSTER ABBEY.

The new reredos, executed in marble and alabaster, and the altar-table of cedar, are now in course of completion in Westminster Abbey, from the designs of Mr. Scott. The new works also include the restoration of the sedilia and a tesselated pavement of marbles and enamel mosaic surrounding the table. The work has been admirably well executed by Messrs. Poole, at a cost of about 6,000*l.*, defrayed from a fund devoted to decorative purposes in connexion with the Abbey.

The design for the large mosaic of the "Last Supper" was made by Messrs. Clayton & Bell, and has been executed by Dr. Salviati, of Venice. The size of the recess to contain this mosaic was determined by the old central canopies of Bernasconi and by the length of the ancient retabulum, fragments of which are still preserved in the Abbey, under glass: it was, however, discovered, after the mosaic was prepared, that these canopies were not originally attached to this part of the reredos; so their restoration was abandoned, and the mosaic set between two necessarily disproportionate borders. The whole suffers in consequence. The upper border, not yet executed, but represented in the Abbey by a temporary cartoon, will consist of canopies in metal-work and enamel, and the lower part (also at present represented by a cartoon), of medallions in mosaic, after the manner of the old retabulum. The carving of the subjects from the life of our Lord in the cornice were executed by Mr. H. H. Armstead.

The table has been executed in pencil cedar, and inlaid with other woods, by Messrs. Farmer & Brindley, the front and sides being ornamented with Scriptural subjects, carved in relief, the old marble slab being placed on the top.

The tesselated pavement on which the altar stands is now set back to its original position, so as to admit of the restoration of the part of the old marble mosaic floor which was previously hidden by it.

In previous numbers of the *Builder*, notices have been given of the progress of the work, with reports of several interesting antiquarian discoveries then made, to which we refer our readers.

ARCHITECTURAL REMAINS IN INDIA.

Our readers will be glad to hear that the Governor-General of India, Sir John Lawrence, has taken the praiseworthy step of issuing a commission to inquire into the best means of preserving the numerous fine and interesting architectural remains which exist throughout the whole of our dominions in India. For years Col. Cunningham and others have been advocating this measure, but have failed to obtain a proper hearing. It is said that an efficient plan will be organized for taking photographs, plans, and measurements.

PROVINCIAL NEWS.

Liverpool.—The foundation-stone of the new Southern Hospital has been laid by the Earl of Derby. The new hospital, which will be built upon a plot of land in Caryl-street (late Harrington-street), will cost 35,000*l.* It will include, it is said, all the most modern and approved sanitary arrangements. The endeavour is to combine entire simplicity of architectural outline with the most perfect internal arrangements, hoping, by so doing, to prevent the occurrence among the patients of those diseases peculiar to hospitals, and which have often proved more fatal than the accidents and diseases for which they have been admitted. The subscription-list is headed with twelve individual contributions of 1,000*l.* Altogether towards the cost of the building 25,000*l.* have been contributed. The principal front of the new building will be to Hill-street, presenting a frontage of 300 ft., and extending in depth 180 ft. There will be a centre and two end blocks. The former will contain the administrative department, with the operating theatre, chapel, board-room, waiting and examination rooms. The end blocks, separated from the centre by corridors east and west, will contain one large and one small ward each, with nurses' rooms, baths, patients' lifts to each floor, and every arrangement for the comfort and convenience of the patients. The proposed accommodation will embrace 200 beds. The building will be erected from the designs, and will be under the superintendence, of Mr. Culshaw and Mr. Sumners, of Liverpool.

Penzance.—The state of the Penzance Western Esplanade wall engages attention. The further fall of 25 or 30 ft. of wall, and the consequent exposure to wintry gales of the path and roadway, begin to excite apprehension in the town. Already there is a thousand pounds' worth of wall to be rebuilt, for a foundation has to be sought 25 ft. deep through sand, beach, boulders, and clay, and a wall 14 ft. or 15 ft. high raised on this foundation. But this is not the worst. A southerly or south-easterly gale would undermine more of the wall to the east, and furiously assail the shaky wall and ground outside the Baths, which is only about 12 ft. from the outer wall. It is feared that a gale might bring down this large structure. To make a good job of it, says the *Cornish Telegraph*, some would have the Local Board rebuild the whole length of the sea defence, widen the Esplanade 12 ft. or 14 ft., and purchase and remove the Baths. These ought to form the centre of a fine crescent on the unoccupied land known as Miss John's field. This improvement might cost 6,000*l.*, but it would not be dear. A small rate thrown over thirty years would meet it.

Saltburn-by-the-Sea.—A meeting of the inhabitants of Saltburn has been held, for the purpose of considering the advisability (or otherwise) of establishing a company for the erection of a promenade pier at Saltburn. The cost of the proposed scheme is guaranteed to be under 6,000*l.*, and it was ultimately resolved that a company under the limited liability principle should be formed, the capital being 7,500*l.*, in 1,500 shares of 5*l.* each.

Exeter.—The buildings of the Devon House of Mercy, at Bovey Tracey, have been opened. The building is from designs by Mr. Woodyer. The plan is a parallelogram, running east and west, with two principal wings projecting to the south, the chapel being an extension of the main line of building to the east. Being built on a sharp declivity, there is a basement story under the west end of the house, containing the kitchen and other domestic offices, stores, &c. A large laundry and wash-house, extending to the north or back of the main building, contain all the modern conveniences for carrying on that branch of industry, by which it is hoped that the inmates will be able to earn funds towards their own support. The western wing contains a large dining-room, probationers' rooms, and dormitories, with sisters' rooms annexed for superintendence. On the ground-floor of the centre block of the building are class-rooms for the instruction of the inmates, and porters' rooms, with dormitories and sisters' rooms over. The eastern wing, which is not commenced, owing to a deficiency in the funds, will contain the sisters' community and dining-rooms, the sister-superior's apartments, and the infirmary and visitors' room. The materials of the building are granite and Bath stone, and extreme simplicity, as is fitting for a building devoted to such a purpose, has been studied in every detail in the house. The chapel is lofty, and terminated in the east end with a polygonal apse. A chaplain's-room and vestry are built on its north side. The windows are single lights, with moulded jambs and hoods, internally standing upon circular shafts of grey forest stone, and five of them are filled with stained glass, by Messrs. Hardman & Co., of Birmingham. The reredos is for the most part of alabaster, principally English, but some portions of white Italian. It consists of an arcade filled with figures of angels, above which the work is carried up in geometrical forms as high as the plate of the roof, and the openings will be filled with English mosaics. The east window is so treated as to be embraced by and form part of the reredos. The whole of the fittings will be of oak. At present, however, only the western screen, with the organ-gallery over, is completed. A simple bell-turret, of oak shingles, surmounts the west end of the roof. When completed, the house will accommodate eighty inmates,—viz., seventy-two penitents and eight sisters.

Greenstreet, near Faversham.—A small institute building has recently been erected in this village by a limited liability company, composed of a few spirited inhabitants of Greenstreet and its neighbourhood, under the presidency of Captain Lake, to whose assistance the company is mainly indebted for its success. The building comprises a lecture-hall, capable of seating about 400; reading-room, and offices. The hall has an open-timbered roof, with a pierced quatrefoiled cornice, forming the upper part of roof-plate, for the purposes of ventilation. The room is lighted with gas from bracket-lights against each side. The woodwork is stained and varnished, and the walls distempered a light fawn colour. Externally the building is of gray stocks, relieved with red and black brickwork. The total cost has been about 500*l.*, and the works have been carried out from designs by Mr. Benjamin Adkins, architect, Faversham, the builder being Mr. S. George, of Greenstreet.

FROM SCOTLAND.

Dundee.—A serious accident has taken place at Dundee Old Gas Works, whereby twelve men have been dangerously hurt, and some of them, it is feared, beyond the hope of recovery. A gas iron tank, 100 ft. in diameter, is being erected by Mr. R. Laidlaw, of Glasgow. There is an excavation 26 ft. deep, into which the tiers of plates are lowered, the men working on scaffolding fixed in the middle of the excavation. The men —15 in number—were attempting to lower the third tier of plate, weighing about 10 tons, when it swung to one side, breaking the scaffolding and precipitating twelve of the men to the bottom of the excavation.

Crieff.—Since the accident which occurred about the middle of August at the new bridge in course of erection across the Earn at Crieff, the rebuilding has been pushed forward. The arches were finished some time ago, and the parapet on the east side is in an advanced state. One of the centre arches, however, has bulged out, and showed symptoms of again giving way. The contractor became alarmed, and gave orders at once to stop the traffic and works, which was accordingly done; and it is doubtful if the building can be proceeded with till after the winter months. The inspector from Edinburgh has examined the damaged arch, which measures in length from pier to pier upwards of 40 ft.

Jedburgh.—Another slip has occurred at the Castle-hill Tunnel. A somewhat serious slip had taken place owing to the presence of much water and sand. The contractor thought that the best thing for them to do was to sink another shaft at the place where the ground had slipped; and accordingly this was done, not, however, without a considerable amount of labour, the men having been working night and day in it so as to have it completed as speedily as possible; but another slip took place, and, as fears were entertained that the wall in front of the Castle might also be brought down, the workmen were ordered to fill the shaft up immediately for safety; thus undoing in a few hours what it had taken nine days and nights to accomplish. The work will now be carried on only by the shaft situated a little further towards the west, until the workmen again approach the dangerous spot which has just been filled up.

Glasgow.—Free Barony Church, erected at the corner of Castle-street and Mason-street, has been opened. The edifice (a notice of which has already appeared in the *Builder*) is seated for 1,100, and large side rooms adjoining will hold 500 or 600 in addition. The chief peculiarity of the interior is the arrangement of the pews, which are in concentric tiers, both in the area and gallery, so that the sitter in every part of the church directly faces the preacher. There is a tower, 130 ft. high. The style is Gothic. The building was commenced about two years ago; its cost is about 10,000*l.*, inclusive of site. The architect was Mr. Honeyman. The contractors were,—For mason-work, Messrs. Bruce & Keir; joiner-work, Messrs. Watt & Wilson; plumber, Mr. R. Philip; plasterer, Mr. Alex. Campbell; slater, Messrs. J. M'Ouat & Son. The heating apparatus was fitted up by Mr. Ritchie, of Edinburgh, and the painting was done by Messrs. M'Farlane & Smith.

Stirling.—Mr. M'Lean, acting for Mr. Rochead, architect of the new transept of the High Church here, has examined the unoccupied space above the modern plaster ceiling of the West Church, and finds that the old open timber roof of the thirteenth or fourteenth century still exists, in all its entirety. A tracing of this roof has been taken, and the wonder is expressed that it should ever have been hidden under a mass of plaster. It is hoped that the discovery will engage the attention of the town-council.

Alloa.—The Episcopal congregation finding their present church to be inconvenient in various

ways, began to move some time ago for the erection of a new place of worship. The Earl of Kellie offered to defray the cost of the new building, on condition that the old one should be placed at his disposal. The offer was at once accepted, and arrangements have now been completed for the erection of a new church. Mr. R. Anderson, Edinburgh, is the architect whose designs have been selected, and under his superintendence the work will be carried out. The church will accommodate in the nave 165 sitters, exclusive of space for chairs, and the choir thirty sitters, exclusive of the clergy. The entire cost of the church will be over 3,000*l.*, the contracts amounting to 2,600*l.*, exclusive of boundary walls, cost of site, and incidental expenses.

THE NEW ORPHAN HOUSES, ASHLEY DOWN.

The twenty-eighth report of the proceedings of the remarkable institution for orphans at Ashley-hill, Bristol, has just been issued by Mr. George Müller, its founder. It is, like all the statements on the same subject that have preceded it, very extraordinary. The institution has been more than thirty-three years in operation. Its beginning was very small, but the expenditure during the past year amounted to 34,849*l.* 0s. 6d. In no case is an appeal made to any individual for help, and everything is paid for in ready money, although there is no capital to fall back upon should the hand-to-mouth system happen on any occasion to fail the 1,304 orphans who have to be provided with their daily food. It is a most perilous position for such a multitude of children to be placed in, unless, indeed, one believes that Mr. Müller and his wife are not liable either to accident or disease.

Here is the principle in operation,—

"Nov. 30.—This morning we had only received for the benefit of the orphans 10*l.* 16s. 6d., and for the building fund 19*l.* 2s. 6d. We gave thanks to the Lord for this, and *asked for more*. In the afternoon came in further 6*l.* 13s. 3d. In the evening when my dear wife and I were giving thanks for this, came in further, while we were in prayer, 5*l.* 5s. We again gave thanks for this, when presently, while we were yet in prayer, came in 2*l.* 1s. 9d. and 7s. 6d. We further praised the Lord for this, and *told Him* in prayer, that even this very evening He could *send us more* than He had done all the day, when a few minutes after there was a knock at the door, and a letter containing 300*l.* was handed in, which a gentleman had just sent. In prayer we had especially spoken to the Lord about the high price of provisions, &c., and asked him for large supplies on that account."

The most of all this money was actually *given*, and *on the way, before* the prayers that we are to understand evoked it were uttered. Mr. Müller wants 40,000*l.* for the current year, and no doubt he will get it.

WREXHAM CHURCH, NORTH WALES.

The parish church of Wrexham was re-opened for divine service on the 16th of October. The alterations effected in the interior, by the demolition of the huge galleries and the removal of the high square pews throughout, have restored to the nave arcade its massive and grand proportions. Previous to the changes nothing could be worse than the arrangement of the seating, &c. The aisles were choked up, and the fine Perpendicular windows cut in two by ponderous galleries, in which very few could see the clergyman; while the approach to the chancel was blocked by a huge pile of carpentry, forming the pulpit, reading-desk, and clerk's desk. The chancel itself was in confusion,—the fine old brass lectern stowed in one corner, disused, no proper stall-seats, and the north window of the chancel, next the apse, concealed by a monument of gigantic size, the work of Roubiliac. The curious metal screen to the chancel has been preserved. During the process of cleaning the walls from the successive coats of whitewash, some very interesting remains of mural painting were brought to light, the most important being portions of the representation of the Last Judgment, over the chancel arch, the colours remaining in good preservation. The east ends of both the north and south aisles were originally chapels; that on the north was probably the ladye-chapel, the entire wall surfaces being powdered with *fleurs-de-lis* and other devices. Every trace of art-workmanship has been preserved, and the fragments of window-tracery depending from the now chancel-arch left as historical evidence that the chancel and apse were subsequent additions to the church itself.

By the kind permission of Mr. Fitzhugh, the large monument on the north side of the chancel has been removed and fixed between the windows in the north aisle, and the window which it concealed has been restored. The chancel has been paved with handsome encaustic tiles, and stalled with oak seating on each side. On the north-east side of the nave, at the entrance to the chancel, a handsome stone pulpit, having niches filled with the figures of our Lord and the Evangelists, and enriched with marble shafts and much carving, has been fixed. This has been presented to the church by Mr. Walker, the mayor of Wrexham. The prayer-desk stands on the south side of the chancel-arch, and the noble brass lectern is again used for the reading of the lessons to the congregation.

The entire area of the church is filled with wainscot open seats, having ornamental bench-ends. It is much to be regretted, that owing to insufficient funds, the north chancel aisle (intended to receive the organ) has not been built. The western gallery, therefore, with the organ-chamber over, still remains; but the removal of the organ, and the erection of a suitable chamber for it, on the north side of the chancel, will probably be accomplished at no distant period; for, until this is done, the work cannot be said to be complete. The church has been efficiently warmed with a hot-water apparatus, by Mr. Roper, of London.

Mr. Yates, of Shiffnal, has carried out the works in a most able manner, under the architect, Mr. Ferrey, F.S.A., of London. The cost has been upwards of 3,000*l.*

THE POLLUTION OF RIVERS.

A conference of representatives of the municipal corporations and other local authorities in the valleys of the Irwell and the Mersey, has been held in the Manchester Town-hall, upon the invitation of the corporation, to consider the steps it may be desirable to take when the Rivers Pollution Commission sits in that city. The Mayor of Manchester presided; and the mayor's parlour, in which the meeting took place, was crowded. There were representatives present from Bolton, Blackburn, Oldham, Macclesfield, Bury, Stockport, Wigan, Bradford (near Manchester), Newton Heath, Rusholme, Heywood, Bacup, Rochdale, Salford, Chorley; from the millowners' associations along the course of the Irwell and the Mersey; and a considerable number of the city corporation.

The Chairman, in introducing the business, said the question was felt to be a very important one. It seemed to him that nothing could meet the requirements of the Commissioners but the formation of very large sewers, upon the London model, by which the sewage and other impurities of the towns in the basins of the Mersey and the Irwell might be conveyed direct to the sea. If Manchester were to adopt that plan, the action which it might take would be useless unless the other towns above and below it on the Irwell acted in combination on the same plan. It was clear, therefore, that the works must be either undertaken at the national cost or be shared in by the whole county. It had been suggested that the sewage should be used for the purpose of irrigation; but it would be exceedingly difficult to carry out that system near Manchester, which was surrounded by a network of house property for many miles. The atmosphere in and around the city was not very agreeable, but if the sewage was to be turned upon the land he was afraid that the present evils would be very much aggravated. He believed it would be unadvisable to attempt to carry out a scheme of irrigation; and he supported a plan which would remove the nuisance of the sewage matter from the neighbourhood and carry it direct to the sea. The practice in Manchester had been to collect the refuse and send it into the country, but the demand was falling off, because while the production increased the extent of land requiring the article was getting smaller every year.

The town clerk of Manchester said that the Rivers Pollution Commission would hold a preliminary inspection in that city on the 12th of November, preparatory to beginning their public inquiries in respect to the condition of the basins of the Mersey and the Irwell. The city surveyor had prepared a map (which was exhibited in the room) of the towns which drained into the Irwell and some of its tributaries, and it showed that there were 159 towns, or villages, having more than 500 inhabitants, which were so situated. The commissioners recommended irrigation as the best means of disposing of town sewage, and that in order to carry out the plan local authorities should have the power to purchase or take land compulsorily to the extent of one acre for every fifty persons in the population. As regarded Manchester that suggestion was absolutely impracticable. First of all, the commissioners proposed that all privies and ashpits should be done away with, and they were of opinion that the system of sewage irrigation could never be effectively carried out until the water-closet system was more thoroughly adopted. It had never yet been proved that irrigation with pure water could not be as beneficial as irrigation with sewage. There were 50,000 houses in Manchester, and he estimated that it would cost 10*l.* per house to substitute water-closets for the present system, and it would require half a million of money at the outset. He could not even suggest what would be the probable expense of the sewers that would be necessary to carry away the volume of sewage. Where were the local authorities to purchase the land? Taking the population of Manchester at 380,000., that would give more than eleven million gallons of sewage water per day which they would have to dispose of; and if he added Salford, the population would be increased to 450,000, and the sewage matter to fourteen million gallons. It would require, on the commissioners' scale of one acre to every fifty persons, more than 7,500 acres for Manchester alone as a sewage irrigation farm. It appeared to him that that was an absurdity.

Great regret was expressed, in which we participate, that the town-clerk should hold such views.

A resolution was passed declaring that, in the opinion of the meeting, all the local authorities should combine in giving the fullest information to the commissioners; urging upon all corporations and local boards interested in the inquiry to be prepared with evidence of the mode in which sewage is at present dealt with in their respective localities; and to say to what extent irrigation or any other system could be carried out, and generally to point out the local difficulties of dealing with the whole question.

ACCIDENTS.

An inquest has been held on the body of an excavator, who was killed whilst at work in the tunnel of the St. John's Wood Railway by the fall of a large quantity of clay which formed part of an embankment along the centre of the tunnel in the Park-road. The evidence showed that deceased, with another man, whose thigh was broken through the accident, was engaged in a rather irregular manner in attempting to drain some water which had accumulated at the base of the clay bank, and which would have impeded the progress of the works. Although a ganger had instructed the men to drain the water off, the superintendent of the works said this was not done by his orders, or he would, before allowing the men to proceed with the work, have shored up the clay bank. Whilst the men were making a small trench to carry the water off a portion of the soft clay halfway up the bank gave way, and the top of the bank, which had become hard through exposure to the wind, broke off for several yards in extent, and in falling struck deceased on the head and knocked him up against the wall of the tunnel. It also partly buried deceased's comrade. The jury, after deliberation, returned a verdict of accidental death; but added a resolution that, in their opinion, more care in future should be observed on the St. John's-wood Railway, in protecting the lives of workmen, by shoring up in the excavations.

At the Lewes-road Viaduct, Brighton, an accident in connexion with the Kemp Town Railway Extension Works has just occurred. Workmen were about to lower an iron girder on to the abutment of the viaduct which spans the Lewes-road, near the entrance to the Parochial Cemetery. There were three girders; and two of them, weighing 12 tons each, had been lowered safely, and the third weighing only 4 tons, was about to be lowered by the same tackle. A seaman, being practically acquainted with the making fast of ropes, had charge of the "sheer

legs" and "guys," and was standing on the abutment to ease off the girder with a crowbar, in case it hung up anywhere. While attending to this, the stump to which one of the guy-ropes was fastened was torn out of the ground, although it was driven into the earth 4 ft. at an angle of 45 degrees. When that happened, the "sheer legs" fell over, and a chain, catching him by the leg, pulled him over the viaduct, he being too near the edge to recover himself. The distance which he fell was about 51 ft., and the poor fellow died in the hospital. The ground into which the stump was driven was clay and flints, with only a few inches of mould; and it was examined before the girder was lifted. None of the witnesses could account for its giving way under the strain of the lighter girder when it had carried the heavier ones. The jury was of opinion that every precaution had been taken, and returned a verdict of "Accidental death."

At Chesterfield, a man was engaged in putting on the roof of the new building for the Sheffield and Rotherham Branch Bank, when he accidentally fell, and his body came in contact with the joists of the first floor. He was much injured on the side and head. A similar accident occurred in St. Helen's-street on the same day. Mr. Edwin Wragg was engaged in putting on the roof of some houses, and he fell, his body coming in contact with the joists of a floor. Several of his ribs were broken.

At Leeds, a chimney about 20 yards in height, attached to the Pontefract-lane chemical works, Park-row, has been completely demolished. Great damage was caused to surrounding buildings by its fall. The chimney, which was a square one, had been built many years, and the damage to it and the buildings will only be repaired at the cost of several hundred pounds.

At Orpington, near St. Mary Cray, nearly twenty buildings have been destroyed by fire, rendering fifty families homeless. The fire, it would appear, broke out in a large wood and broom-handle yard, situated in the parish of Orpington, which is about half a mile from St. Mary Cray. The fire next seized upon a large barn, and the flames drifted over the roofs of fourteen private residences. Owing to the large quantity of wood used in their construction the whole burned with the greatest vehemence.

PROPOSED ST. PANCRAS INFIRMARY.

The Poor-law Board having sanctioned the purchase by the St. Pancras guardians of 4½ acres of land at Highgate, on which to build an infirmary for the sick poor in the workhouse, the *British Medical Journal* says, — "It is proposed that 20,000*l.* or 25,000*l.* should be spent upon the building, and a limited number of architects are to be invited to send in plans for competition; but, as the tenders of builders for such works often far exceed the estimate of the architects, it is proposed that it shall be a condition with the architect that he shall make no claim upon the guardians if he cannot find a respectable builder to carry out the works at the sum he estimates them to cost."

Are the guardians prepared to pay each architect the cost of a precise estimate? or will they allow the builder who submits a tender to execute the works at that amount, without further competition? Of course the guardians do not wish to get something for nothing. Are they aware that each architect, if he employed a surveyor to make a correct estimate, would have to pay at the least 200*l.* (1 *per cent.*) for it?

DARLINGTON WORKHOUSE COMPETITION.

Sir,—The publication by you of my letter herein has brought about two results. On the 31st ultimo I received back my designs apparently from some anonymous source, for there is no communication therewith to lead me to suppose they have come back from the guardians; neither is my estimate returned, nor any reply received to my demand concerning it; and there was a paltry sum of 10d. to pay for carriage. The other result is, Mr. Pritchett's letter in your last impression, conveying to the public as well as to me, a competitor, for the first time, the fact that the premium had been awarded, and that so far back as December 24th last year. My grievance with the guardians is, if anything, aggravated by Mr. Pritchett's announcement; for by it I find they have retained my designs ten months after they had awarded the premium to another; and left me in doubt how long or for what purpose they would have retained them had I not applied for them. The most honourable course for the guardians to pursue is to advertise the award of their premiums and to return immediately the competitive designs.

An Old Subscriber.

THE HIGHEST CHIMNEYS IN YORKSHIRE.

In your impression of the 5th of October, you call attention to a chimney lately erected at Bradford, as being the highest in Yorkshire.

The paragraph states that this chimney measures from the foundations to the top 110 yards, and rises a clear 100 yards from the ground-line. Its foundations consist of two courses, 22 ft. and 21 ft. square. It measures 20 ft. across at the foundations, and 9 ft. at the summit. The flue is 7 ft. in diameter. It is also said that the next chimney in size is one near Huddersfield.

I beg to state that this latter chimney was erected by me in 1857, for Messrs. Brooke, Fireclay Works, Huddersfield; and the following statement of its dimensions shows that the Bradford chimney is not the highest in Yorkshire:—

Messrs. Brooke's chimney is built throughout of fire-bricks. Measured from the foundations to the top it is 107 yards high, and rises a clear 102 yards from the ground-line.

The base at the foundations is 36½ ft. square: at the ground-line it is 31 ft., and 11 ft. diameter at the summit.

The flue is 14 ft. in diameter at the bottom, and 9 ft. at the top. The chimney contains 144 cubic yards of concrete, 2,227 cubic yards of brickwork, 2,452 cubic feet of ragstone footings, and 3,341 cubic feet of ashlar.

By these it will be seen that Messrs. Brooke's chimney is 2 yards higher from the ground-line than that erected at Bradford, and is in every respect considerably larger. I have no reason to believe that there is a larger or higher chimney than Messrs. Brooke's in England.

Robert Morgan, C.E.

COLLIERY EXPLOSIONS.—A CAUTION.

Sir,—Having given attention to this study, and believing that colliery explosions are induced by certain extraordinary conditions of the atmosphere, I now beg to return once more to the subject.

The most terrible catastrophes of this class were preceded by remarkable oscillations of the barometer and great changes of temperature, with frequent rains, and the characteristic meteorological features at the precise time of each explosion were high temperature and greatly diminished atmospheric pressure, with damp hazy weather. Such were the exact indications on the 10th, 11th, and 12th of December last. The barometer rose and fell considerably in a few hours, and the temperature as rapidly advanced and declined in the same way, the greatest heat being invariably registered simultaneously with the most reduced readings of the barometer, and the awful explosions at the Oaks and Kidsgrove collieries occurred on the morning of December 12th, at the very time when temperature, having been just previously very low, became suddenly high, and just when the pressure of the atmosphere, which had been considerable a few hours before, was then much reduced.

We have been and are still passing through the like conditions of weather,—dry and cold one day, damp and warm the next. The rush of these various kinds of air, with constant changes of atmospheric pressure, must interfere with the ventilation of our collieries. Hence the need of caution. The men should be warned of the increased danger of using naked lights. The shafting and other ventilating facilities should be closely watched. Every such mining inspector ought to study meteorological elements, especially in the winter season; and should make himself familiar with the changes of the weather, rise and fall of the barometer, and temperature, particularly during a critical period like the present and the season in anticipation.

Thomas L. Plant, F.M.S.

THE GULF OF LIONS.

In the article on "The Road to India" in the *Builder* for October 26th, your printer has fallen into an error, which, however, is very frequently made, and even in many of our best maps, in spelling the Gulf in the Mediterranean, the ancient "Gallicus Sinus," as the "Gulf of Lyons," as if it were so called after the city of that name. The city of Lyons is nearly 180 miles inland, and has no connexion whatever with the name of the gulf, which is properly the "Gulf of the Lion," or, as it appears in some French maps, "of the Lions" (*des lions*), and was so called on account of the sudden and violent storms which prevail on its coasts.

The Abbé de Longuerue, in his "Description de la France," says it is called the Gulf of the Lion, "*à cause des grandes tempêtes dont il est fréquemment agité, et des bas fonds qu'on trouve à ces côtes-là, qui font périr les vaisseaux qui y abordent, ou qui y sont portés par la tempête: de sorte que l'on compare la cruauté de cette mer orageuse et dangereuse, qui engloutit ceux qui y navigent, à celle d'un lion dévorant.*"

Guillaume de Nangis, in his "Life of St. Louis," speaks of it as "*Mare Leonis ideo sic nuncupatur quod est semper asperum, fluctuosum, et crudele.*"

M. Bruzen de la Martinière, in his "Dictionnaire Géographique et Critique," 1732, says,—"*Quelques-uns imaginent faussement que cette ville (de Lyons) a donné son nom au golphe, ce qui n'est ni vrai ni vraisemblable. M. Boudrand a conjecturé que ce nom pouvoit avoir été donné à ce golphe à cause des tempêtes auxquelles il est fort sujet.*" M. Guibert says, in his "Dictionnaire Géographique et Statisque," "*Golfe du Lion. On attribue l'origine de son nom à l'agitation continuelle de ses eaux, qui a été comparée à la violence du* lion." The Spaniards call it "*Golfo Leone.*"

In Blackie's "Imperial Atlas," edition 1856, under the head "Lion, Gulf of," we read,—"The name of the gulf is said to be derived from the fury with which the waves are often lashed by the violence of the winds, and not, as is sometimes supposed, from the French "City of Lyons."

By using the original orthography of the name, and writing the "Gulf of Lions," we should at once correct a popular error, and at the same time preserve the sound to which we have been accustomed. J. C.

POOR STRAW-PLAIT WORKERS.

APPEAL TO LADIES.

The *Builder* has long been known to readers as having several times gone beyond its diversified provinces to "do good." May I ask permission to submit through it the sorrows—I had almost said "wrongs"—of a large body of English women, in what may be termed a national manufacture, promising to wilfully "set down nought in malice?"

The distress of the "plait workers" (to which, I now learn from the neighbourhood, should be added "bonnet-sewers") has been several times mentioned. A correspondent of the *Bedford Times*, in quoting *Echoes from the Clubs*, seemed to have hit the mark in observing, "Ladies should, from principles of humanity, wear straw bonnets, like their not less attractive mothers and grandmothers."

May I digress for an instant? The "young days" memories of my contemporaries will bear me out how *very* pretty young girls looked in "cottage" or other rather coquettishly-shaped bonnets, with "ribbons"—not least when "blue"—at fancy. I am sure, also, that a "Thompson" or "Bloomfield" would have agreed with me—quite equally attractive, or inciting to hymeneal aspirations, as all the "silk" or "velvet" in the world. Would they receive less male admiration now, if known, as "*good* girls," to have reverted to the other from real patriotism and benevolence?

I shall probably have to meet one objection (though not from them) to dispose of. It "makes good" for the *silk, &c., trade.* Very likely; but pity if that rises on the unexpected and undeserved ruin of another.

Also, as certainly expected, I have received (equally disinterested) good medical corroboration, that the "patch," however rich, on the "top" of the head, is *no* sufficient protection. To me it has long seemed a special mercy that they have not frequently had sunstroke, else deadly chill in the opposite season; and can we be *sure* now that, "from want of proper bonnets," *ought* not to form a small part of each week's account of deaths; or that none, dear as fair, have been lost to parent or lover through this origin?

But, to the "point,"—*Luton* (long known to *Antiquaries* for its large church and "Baptistery"), now the straw plait "metropolis," even more than Dunstable, has a very large parish,—16,000 or 17,000 acres,—with enormously increased population of late years, believed now nearly 20,000. Of this I fear about *five thousand* females, of all ages, are "three parts starving," unable to earn half-a-crown" where they could "seven shillings" a week; and mainly supported by the poor-rates, which have reached "*twelve*" shillings in the pound. Also, we have read of "poor children crying for bread in the streets." The same applies more or less to several neighbouring places, including part of Bucks, and, I believe, Herts; and even at Bedford, twenty miles distant, one or two large plait-shops have been entirely closed.

Alas! for the "caprice of fashion,"—harmless,

perhaps, sometimes, but hardly so if it causes the helpless misery of many thousands. And this, perhaps, the work and continuation of three or four "Madame Mantalinis," as I will not believe, ladies of the aristocracy or middle class would have knowingly brought this distress on their country-women. Might we not hope our beloved Queen might be moved to "set the fashion for straw" again?

There is yet a last view, rather delicate, but well worthy the attention of principled ladies for their less favoured "sisters." The morals,—or, rather, temptations,—of younger females in more than one manufacture have been thought a little perilous or "slippery," and I fear that at Luton is not exempt. How *very* sad, then, if they should anywhere have the added temptation of *want!*

A Cambridge Man,
Native of the Quarter.

DERIVATION OF NAMES.

Being very much amused with some remarks headed "Human Beasts, Birds, and Fishes," which appeared in a recent article in the *Builder*, induced me to try my hand, at what might be done in a similar fashion, with the surnames of my brother registrars, scattered up and down the land, and I have ventured to send you a few for perusal and insertion, if you think proper. I could make out lists embracing almost anything and everything, making altogether a very curious, amusing, and interesting lot of surnames.

James Johns, Registrar of Births and Deaths.

REGISTRARS' NOMENCLATURE.

Disposition and Temper.—Allgood, Carnell, Croker, Cross, Faithful, Gay, Egar, Good, Jolley, Light, Noble, Savage, Smoothy, Wildish, Meek, Sturdy, Bland, Moody, Still, Sharp, and Grave.

Animals.—Bullock, Bear, Buck, Bull, Fox, Hare, Hart, Kid, Lyon, Fitch, Stag, and Wolf, with Hunters and Butchers to slay them.

Feathered Tribe.—Bat, Crow, Daw, Jay, Parrott, Peacock, Swan, Teale, Martin, Kite, Nightingale, Wildgoose, Finch, Crane, Woodcock, Gosling, and Buzzard; but nothing but Archers, Fowlers, and Cannon to bring against them.

Food.—Bacon and Lamb, either Roast or in a Pye, with only Salt, Sage, Radish, Onion, Mustard, Garlick, and Rice as adjuncts, a very meagre bill of fare; to be washed down with Beer, Porter, Perry, Goodale, Hollands, and Water. There is a Kitchen provided and several Cooks.

Apparel.—Coat, Glove, Wig, Cloak, and Bussel.

Useful Articles.—Pulley, Sponge, Saw, File, Gad, Pillow, Harnes, Chalk, Candy, Hatchet, Hartshorn, Emery, Flint, Cork, and Wagon.

Considered Precious.—Alabaster, Ivory, Silver, Gold, Dymond, and Jasper.

Countries, Counties, Cities, and Towns.—Derbyshire, Cornwall, Lancashire, Cheshire, Holland, Ireland, Bradford, Bromley, Bromwich, Clapham, Crewe, Croydon, Davenport, Douglas, Fulham, Lancaster, Leeds, Leith, Oldham, Paisley, Preston, Sunderland, York, Cairo, Nuremberg, Whitby, Chester, and Hull.

Judicial Bench.—Turner, Stuart, Wood, Wightman, Mellor, Shee, Williams, Martin, Willes, Byles, Lush, and a Wilde for those tired of the marriage tie.

PROFESSIONAL SPARRING.

Sir,—I am happy to find you set your back against allowing your periodical to be used as a sparring ground between professional men. If they have not sufficient self-respect it is well they should have the means of lowering the tone of the profession taken out of their hands.

An Occasional Reader.

THE BUILDERS' BENEVOLENT INSTITUTION DINNER.

The Twentieth Anniversary Festival in aid of the funds of this excellent Institution was celebrated on Thursday evening (31st ult.), at Willis's Rooms, St. James's. Mr. W. R. Rogers, president of the Institution, officiated as chairman, and about 200 gentlemen were present. After the usual formal toasts,

The Chairman proposed "Prosperity to the Builders' Benevolent Institution." He said that most of those present were aware that the Institution had been established more than twenty years, for the purpose of giving relief and granting pensions to unfortunate members of every branch of the building trade, as also to their widows; and during that period a vast amount of good had been done, owing to the very great judgment exercised in conducting and managing the affairs generally. The desire still was to increase the society's sphere of usefulness, by increasing the number of pensioners. He found that they had put by sums of money every year, which were invested in the public funds; and he had no doubt, when he addressed them, there would be a good deal more. He found that they had in stock 13,000*l.*; then there was the interest to be added to that amount, and also the new donations and subscriptions, which, without going into details, he might say would be considerably over 1,000*l.* The sum of 13,000*l.* mentioned was not of itself entirely for the pension fund, for out of that sum 2,900*l.* had to be set apart for a special fund for building purposes. He would not, however, go further into that question, but call the attention of the gentlemen present to the number of pensioners then upon their books, namely, 45; and he would also say that at each election several of the candidates who were unsuccessful had to wait for a second, third, or even a fourth time. And then, again, in order that the candidates might be eligible to the rules, they must be 65 years of age. That was not what the builders of London would be contented with. No person, according to the rules of the Institution, could be eligible to the benefits until he reached the age of 65; and then, having been elected, his enjoyment of the pension could only last for a few years, say (as he understood was about the average), ten years. He wished to alter that, and for the purpose more funds were required. That was the way it was to be remedied. He was of opinion that the pensioners should receive the benefits of the Institution before they reached so advanced an age. He would make it sixty instead of sixty-five. He was very glad to find such sympathy among them. The question then was, how it could be done. There was only one way. There were 1,300 builders in the metropolis, besides a vast number of other persons connected with the different branches of the trade, from many of whom who were prosperous and wealthy an annual subscription had not been obtained. If they were to subscribe, the funds of the Builders' Benevolent Institution would be greatly enhanced and the desired aim could be attained. When he (the Chairman) became their president his first effort was to endeavour to raise that important element—the funds of the Institution. He could see that those subscribers who gave one guinea might give two guineas, or even three guineas, if they made a slight sacrifice; for really it was no charity to give away that which they did not want themselves. If they had any doubt as to whether it should be two, three, or five guineas, all he could say would be, "Give the Institution the benefit of the doubt." He was about to call their attention to another circumstance, and that was the vicissitudes by which their trade was surrounded. Any master builder might be taken by misfortune, through no act of his own, and become so reduced that he might be necessitated to seek relief from that Institution; and he mentioned that for the purpose of showing how needful it was that they should look after their unfortunate brethren. A very distinguished architect, upon whom he (the chairman) had called, gave a good subscription; but he was surprised that the builders were not able to help themselves. He (the chairman), since he had become connected with them, had felt a great interest in the Institution, and had collected a considerable sum. He would tell them what that sum amounted to,—it was 1,000*l.* He had done that with a motive. He thought the building trade should have ample funds to relieve their distressed brethren. He wanted to increase the number of pensioners, and he wanted to increase the amount given. At present they gave 24*l.* to the men and 20*l.* to the women, per annum but how much more satisfactory it would be if; they could give them 30*l.* and 25*l.* He was quite content to believe that ample funds could be obtained for such purpose, for there was no want of sympathy. The want was,—more funds, more subscriptions,—to make the declining years of their unfortunate brethren happier and to obtain such result he suggested that each well-wisher of the Institution should call upon his friends and obtain his subscriptions; for means they required, and he was sure that, if sought for, the efforts would be crowned with success. He had obtained ten subscriptions of 100*l.* each, and he was sure that if applications were made, such examples as those he had just mentioned would be followed. They would give a subscription,—they would give something in proportion,—so that their own Institution should be first supported before going to another. The chairman resumed his seat amidst great applause.

The successive toasts were then proceeded with, complimentary speeches accompanying each.

Mr. George Plucknett having replied to the toast "The Treasurer,"

Mr. Thomas Cozens, the founder of the institution, expressed his sentiments on the procedure of the child—his child—which had now passed his majority (as stated by their worthy chairman), and he hoped that the "big boy" would be provided with funds to carry him on.

Mr. Benjamin Hannen, the late president of the Institution, as also other gentlemen, replied to complimentary toasts given to them.

Mr. A. G. Harris (the Secretary) then announced the donations and subscriptions of the evening to amount to 1,328*l.* 12*s.* 6*d.*

Books Received.

Examples of Chinese Ornament, selected from Objects of Porcelain, Enamel, and Woven Fabrics, in the South Kensington Museum and other Collections. By Owen Jones. London: S. & T. Gilbert, Copthall-buildings. 1867.

Since the late war in China a large number of works of ornamental art have found their way into England, and old opinions in respect of Chinese art have been greatly modified. With thousands the willow-pattern plate was the limit of their knowledge in that direction, and a lesson could be drawn even from that, but, like a very distant object, it required pointing out before it could be seen. The best works from China that have reached England have been gathered up by the South Kensington authorities, Mr. Alfred Morrison, Mr. Louis Huth, and others; and Mr. Owen Jones, indefatigable with pencil and brush, has transferred their ornamentation to paper, and by means of chromolithography has given it to the public in the shape of a handsome volume of a hundred plates, which may be regarded as a supplement to his remarkable work, "The Grammar of Ornament."

"We have long been familiar," he observes, "with the power of the Chinese to balance colours, but we were not so well acquainted with their power of treating purely ornamental or conventional forms; and in the chapter in 'The Grammar of Ornament' on Chinese ornament I was led, from my then knowledge, to express the opinion that the Chinese had not the power of dealing with conventional ornamental form; but it now appears that there has been a period in which a school of art existed in China of a very important kind. We are glad to think that this art must in some way have had a foreign origin; it so nearly resembles, in all its principles, the art of the Mahommedan races, that we may presume it was derived from them. It would be no difficult task to take a work of ornament of this class, and, by simply varying the colouring and correcting the drawing, convert it into an Indian or Persian composition. There is, of course, in all these works, something essentially Chinese in the mode of rendering the idea, but the original idea is evidently Mahommedan."

We have no desire to see these forms adopted and reproduced as a fashion of ornamentation to last for a season or two, like a chignon or an invisible bonnet, and it would certainly not last longer. The forms are not generally good. Many of them are ugly, and in entire contradiction of a system of ornamentation of which Mr. Owen Jones has been one of the chief expounders. Our author, however, views, as the chief merit, their suggestiveness. They show how unnecessary it is to be content with the stock forms; and that many natural objects may be conventionally rendered in ornamentation without overstepping the bounds of propriety; and so far we go with him. In another direction we can go further still. The system of colour adopted is for the most part excellent. The scheme of colouring of the Chinese is their own. They deal with broken colours: pale blue, pale green, and pale pink for the masses; dark pink, dark green, purple, and yellow and white, in much smaller quantities. There is nothing crude or harsh in their compositions; the eye is perfectly satisfied with the balance and arrangement of both form and colour; but there is, as we have already remarked, an absence of purity in the drawing.

As to arrangement, as Mr. Jones points out,—

"In the Chinese ornamentation, triangulation is the main feature; the geometrical arrangement is absolute and undisguised, but softened by a free treatment of the intermediate spaces left by the triangulation."

The examples given are mainly from works in cloisonné enamel and painted china vases and bottles.

The taste and skill shown by Mr. Jones in the selection and representation are entitled to the greatest praise, and we shall hope to find our manufacturers largely benefiting by the lesson to be learnt from his elegant volume.

Verba Nominalia; or, Words derived from Proper Names. By RICHARD S. CHARNOCK, Ph. Dr., &c. London: Trübner.

MANY well-known words have originated in proper names, and it is well to have a record of them made from time to time before the origin of such words is forgotten. Mr. Charnock's is a very good dictionary of such words, and is both instructive and amusing. It contains many words of interest to our readers, though the origin of few of these may be new to professional men. Passing over all such words as Gothic, Doric, Ionic, *et hoc genus omne*, we may instance such as Derrick, Parian, Travertin, Kyanize, &c. Under "Parian" the author has not alluded to those statuettes and other art-works of artificial and marble-like composition now called Parian. Under the word Cockney are some amusing remarks on its origin: cooking, he thinks with others, had something to do with that land of Cocaigne where fowls ready roasted cry "Come, eat me." Under "Galilee" are some interesting remarks on the monkish practice of seeing friends in the least sacred part of their churches. Humbug is traced to Home or Hume of the Bogue: it has nothing to do with another gentleman of that name of more modern date. Hurrah is a word which originally denoted To Paradise! having been shouted in Eastern battle, on the idea that all who died for their country went straight to Paradise, or Hur, and the Huris, or nymphs of Paradise. The discovery of an ancient city of the dead, called Hur, in the district once called Chaldea, where Eden or Paradise was supposed to have been situated, might have been alluded to under this head, as well as the obvious association of Houris or Huris, as the word has also been spelt, with Hur, and the Slavonic hur-raj, or kingdom, no doubt, of Hur or heaven.

The Antiquities of Hastings and the Battle-field. By THOMAS H. COLE, M.A. St. Leonard's: Karl Burg. 1867.

THIS little volume contains some interesting matter as to Hastings. In Part I. the possibility of Roman origin is considered, an attempt made to fix the site of the Saxon town, and the passage in Domesday book relating to Hastings investigated with especial reference to the "New Burg" therein mentioned. Some materials have also been given for determining the data of the grant of the arms of the Cinque Ports. From Part II. it appears that in the course of a careful examination of the Battle-field the writer was fortunate enough to discover a ravine which corresponds in every respect so exactly with the "*mal fosse*" of the "*Roman de Rou*" that the writer considers that it settles the *questio vexata* of its position; and this appeared to be the general opinion, it is said, of those who examined it on the occasion of the late Octocentenary anniversary.

Miscellanea.

SALE OF THE BRIGHTON OLD WORKHOUSE.—The building materials comprising the Old Workhouse Infirmary, at Brighton, and outbuildings, have been sold. The sale was attended by a great number of persons, and there were thirteen buyers; the several lots realising 773*l.* 1s. 6d.

THE NEW METROPOLITAN STREETS ACT.—The new Act for regulating the traffic in the metropolis, &c., has come into operation. Some sympathy is felt for the costermongers, and for the poor who are their chief customers. Meetings have been held at the East-end to take the clause as to street dealers into consideration, and the advisability of presenting a petition to the Secretary of State, praying for the revision of the Act approved. The occupation of the "betting men" seems gone, and a good thing too. Suspended to various lamp-posts at the corner of the principal thoroughfares in the city is a "police notice," directing attention to the "streets and portion of the streets" having special reference to the Act with respect to carriage traffic. The cab proprietors are making a most determined resistance to the clause requiring them to affix lamps to their cabs at night. As a protest, all those cabs which have hitherto carried lamps of an evening, principally the Hansoms, have come out without them. The cab proprietors also threaten that, if the police commissioner determines to enforce the observance of the clause, after a given day no proprietor shall send out his cabs after dark until the order is withdrawn.

THE HOLY SEPULCHRE.—Letters from Jerusalem state that the works of reconstruction at the grand cupola of the Church of the Holy Sepulchre are advancing rapidly.

THE NEW PARK FOR HULME AND CHORLTON-UPON-MEDLOCK.—Arrangements have been made for the purchase of the land for the purposes of a new park on the south side of the city. The sum of 24,000*l.* will be paid to Lord Egerton, the owner of the soil, the area purchased being sixty acres. Lord Egerton will give the street land, and the corporation have agreed to pay 5,200*l.* for the making the roads, for sewering, and for the necessary fencing of the streets on both sides.

ST. JAMES'S TOWER, TAUNTON.—The announcement that a faculty had been granted to take down and rebuild a portion of this tower, and to restore the remainder, was somewhat premature. The court has just decreed that a copy of a resolution of the vestry to raise the necessary funds for the work proposed must be filed in the Registry of the Court before the faculty would be issued. It is considered questionable whether the funds will be forthcoming. The churchwardens, however, have advertised for tenders for taking down the tower, and as soon as they come in will call a meeting of the parishioners.

THE TRAMWAYS SCHEME.—The Islington vestry clerk, at a recent meeting of the vestry, read a communication from Messrs. Noble & Co., the promoters of this scheme, stating that they intend to fix notices of their intention to apply to Parliament this session for powers to lay tramways in Archway-road, Holloway-road, Upper-street, High-street, City-road, Seven Sisters'-road, Camden-road, and Park-road, and inquiring if the vestry wished to give any instructions as to how those notices should be posted. Mr. S. Smith thought Messrs. Noble & Co. should conduct their business in their own way, and the vestry resolved to take no action in the matter.

AN ELECTRO-MAGNETIC "DIVINING ROD."—An American, according to the *Hamilton, C.W., Times*, claims possession of the secret of a wonderful discovery for making subterranean explorations from the surface for mineral deposits by the application of electro-magnetism. The apparatus, as described, will indicate the direction of the bulk of a mineral vein at any depth, and affords a principle for calculating the species of the ore and the richness of the deposit. The direction of mineral deposits, *when away from any railroad line*, which exerts a counter attraction of great power, is indicated at a distance of several miles. The remarkable success of an American silver mining company in the Lake Superior region is attributed to this discovery.

TUNGSTEN, IN DRILLING ROCK.—It is proposed by Mr. E. Gaudin to substitute tungsten for the black diamond employed for drilling rock. Mr. Gaudin prepares from tungsten, in a flame supplied freely with oxygen, a substance far more brilliant than the ruby, and which will pulverise the hardest granite quite as readily as the black diamond. Numerous experiments, it is said, have shown that it can be obtained in any form and of any dimensions without difficulty: it is equally applicable for drilling rocks and for working tempered steel, and even white cast-iron. We should think, however, that if it be far more brilliant than ruby, and attainable of any dimensions, its value as a precious stone would far exceed its money-value as an article of purchase for any other purpose in the mean time.

THE CHESTER CATHEDRAL BELLS.—Five new bells have been formally received at Chester Cathedral, and added to the three remaining there, so that there is now a peal of eight instead of five as before. The ceremony of depositing them was witnessed by a large concourse of spectators. The curfew weighs 32 cwt., the same weight, and said to be of the same sonorous tone, as the old one. It contains the following inscription:—"Benevolentiâ Civium erga Decanum F. Anson, S.T.P. Warner et Fil. Londini." There will now be a peal of eight bells in the belfry. It is proposed to form a Bell Ringing Association, consisting partly of amateurs and partly of paid ringers in connexion with the cathedral. The bells having been suspended in the cathedral, the Dean addressed the people who had assembled together respecting the reception of the new bells. The large bell has been contributed for by the citizens of Chester as a mark of respect to the late Dean, Dr. Anson.

PORCELAIN GLASS.—The New Bedford Glass Company (U.S.) has recently begun to manufacture porcelain glass for photographic plates. They are blown in hollow cylinders 4 ft. long, cut longitudinally, flattened in a furnace, and cut into plates of the required size.

ARCHITECTURE AT THE ROYAL ACADEMY.—Professor G. G. Scott will give a course of three lectures on Architecture this season, commencing on Thursday, January 23rd. The first course of the season will be by Professor Westmacott, on Sculpture, and will commence on Monday, the 11th instant.

BUILDING-BLOCKS, AMERICA.—The New Haven Building-block Company are manufacturing patent brick, having a long, narrow slit, or air-chamber, which they claim will keep buildings constructed therewith cooler in summer and warmer in winter than when built with ordinary brick. The bricks are made of a mixture of cement and shell lime.

AN ARCHITECTURAL SOCIETY FOR SHEFFIELD.—A meeting of architects was held at the council hall on Monday morning, when it was resolved to form an architectural and archæological society in Sheffield, to be composed of architects and gentlemen interested in the objects of the society. After preliminary matters had been discussed, and several resolutions passed, the meeting was adjourned.

ENGINEERING BEAVERS.—A paper was recently read before the American Association for the Advancement of Science, which stated that on the southern shore of Lake Superior, in Marquette county, Wisconsin, were found remains of long canals and dams constructed by the beavers for the purpose of transporting their cuttings, consisting of trunks of trees, 2 ft. or 3 ft. long, from the places where the trees had fallen to their lodges. Some of these canals were 300 ft., 400 ft., and 500 ft., long. They were generally 3 ft. wide, with an average depth of 3 ft. In order to maintain a continuous depth of water, they made dams at certain distances, and followed the Chinese plan—to whom the lock was unknown—of drawing their cargo from one level to another.

LIVERPOOL ARCHITECTURAL SOCIETY.—The third meeting of the present session of this society was held in the Lecture-hall of the Royal Institution on the 30th ult., Mr. Kilpin in the chair. Mr. J. A. Picton said he had lately made a pilgrimage to the village near Conway, which was the birth-place of John Gibson, the sculptor, and he looked in vain in the church for any monument of the artist. An idea had forced itself upon him that the Royal Academy, to whom Gibson had left all he possessed, should erect a monument to his memory in his native place; and, if they did not, he thought Liverpool would do itself honour by subscribing a small sum for the erection of a mural monument in that place to the memory of the eminent sculptor, whom, without much violation of fact, they in Liverpool might call a townsman of theirs. Mr. Picton and Mr. Boult then agreed to co-operate and take initiatory steps to carry out the object.—The paper of the night was by Mr. F. Horner. The subject was "Notes on Progress in Architecture and the Arts."

THE GREAT CATTLE MARKET FOR PARIS.—The large market at La Villette, on the outskirts of Paris, for the sale and slaughter of animals used for food, was opened on the 21st of October. The constructions completed consist of three immense halls, built much in the same manner as the great *halles centrales*, at the east end of the Rue St. Honoré, that is to say, principally of corrugated iron and glass. The central hall is for horned cattle, that on the right hand for calves and pigs, and the other for sheep. Near the halls are two large streams of water, with sloping sides, through which the cattle are driven and thus refreshed, and beyond are large laystalls and pens. The present market will contain upwards of 40,000 animals of all kinds, and when the buildings are completed half as many again. The establishment includes an exchange, a bank, and a *café restaurant* and *buffet* now in course of completion. The dealers draw lots every morning for the places which they are to occupy in the halls. The means of communication are admirable. The establishment stands close to the circular boulevard which lies round Paris, just within the fortifications, and has on one side a canal, and on the other the *Chemin de Fer de Ceinture*, which communicates with all the great lines of railway and all parts of the capital.

THE LATE PROFESSOR M'GAULEY. — We are glad to hear that a fund, to be called the M'Ganley Memorial Relief Fund, is being raised for the assistance of the widow and family of the late Professor M'Gauley, editor of the *Scientific Review*, whose death was recently announced. A committee, of which Sir David Brewster is chairman, is associated for this purpose, and particulars will shortly be made public.

PROPOSED RESTORATION OF DUNSTABLE PRIORY CHURCH.—There is a necessity for restoring this church, which is in some respects in an unsafe condition, but there is a difficulty in obtaining the means of doing what still requires to be done. The inhabitants are chiefly of the working classes, and have already contributed altogether nearly 3,000*l.*; and the county, and the public generally, are appealed to in the *Bedford Times* for aid in the work. Besides 1,700*l.* immediately wanted to complete the roof according to the plans, the east-end gable must be taken down and rebuilt, the north aisle repaired and lengthened, and the whole church repaved and fitted with new seats. Besides all this, the exterior much requires attention and restoration.

THE KIRMESSE OF TENIERS.—The museum of Brussels has just made an important acquisition. A picture by Teniers, of a character such as is not to be found save in the collections at St. Petersburg and Vienna, has been for many generations in the possession of a family of Antwerp, handed down as an heir-loom, and preserved as a sacred heritage. All the great amateurs of Europe have long known of this picture, and large sums have been from time to time offered to induce its possessors to part with it, but always without success until now. The subject is a Flemish feast, and the host or seigneur is Teniers himself, who is accompanied by his wife and two daughters. The Musée of Brussels have paid 125,000 francs for it.

IMPROVEMENT IN THE STEAM-ENGINE.—An invention, said to be of great importance, has been successfully tested, in the presence of a company of engineers, scientific men, and others, at the engine factory of Mr. Smith, Holborn. The most remarkable circumstance in connexion with the scheme is that the inventor (Mr. Alexander Cæsar F. Franklin, junior) is a young gentleman of the tender age of thirteen! His invention is thus described. "By applying the steam to one side only of the piston a vacuum is caused, without condensation, as in the old low-pressure engines; and the cushions of ordinary high-pressure engines are done away with. The opposite end of the cylinder is left open, and the pressure of the atmosphere — 15 lb. on the square inch—forces the piston back again. Irrespective of this pressure, the saving of motive power is exactly one-half." In speaking of "the immense value of Mr. Franklin's discovery to navigation, if it be successfully brought into practice," it is added, "the effect will be to dispense in most instances with any need of coaling stations on long voyages." But where is the novelty in "applying the steam to one side only of the piston?"

ARTISTIC INSTRUCTION.—Professor Leone Levi recently gave a lecture at King's College, London, on the need of extending artistic and technical instruction in the United Kingdom, and concluded his observations by stating that, with peace and progress in Europe in the last half century, a complete metamorphosis has taken place in the productive powers of the principal countries; that, after vain attempts to prop up manufacturing industry by restrictive legislation, most nations have accepted the economic axioms of Adam Smith and Stuart Mill, and have acted on the policy of free trade; that such freedom of trade has opened for British manufactures the commerce of the world; that, with the extension of mechanical knowledge in all countries, and the facilities of communication, British prosperity must henceforth more than ever depend on the abundance of capital and a plentiful supply of skilled labour; that it is all-important to remove all obstacles and discouragements to the investment of capital in manufactures; that the unhappy difficulties between capital and labour, which have produced strikes and dissensions, demand a prompt remedy; that it is necessary to improve the education and elevate the mind of our labouring classes; that the system of apprenticeship, as prevalent in many branches of industry, is not a sufficient means for affording art instruction; and that the support now given by the State to the teaching of science is not sufficient.

INSTITUTION OF CIVIL ENGINEERS.—Mr. Edw. Byrne's paper, "Experiments on the Removal of Organic and Inorganic Substances in Water," which was read at the Institution of Civil Engineers before closing for the recess, is to be brought forward for discussion next Tuesday evening, the 12th instant, when the meetings of the members of this Society are to be resumed.

THE SEWAGE QUESTION.—The works in connexion with Mr. Pilbrow's scheme for the drainage of the city of Canterbury, have commenced at the point where the outfall sewer is, and empties itself into the deodorising tanks. A staff of labourers are employed in making excavations.——The New York press are urging that the sewage of that city and Brooklyn, which now runs to waste, should be saved and applied to filling up the marshes which lie on the neighbouring shores of New Jersey and Long Island.

THE LATE EARL OF ROSSE.—The astronomical world has lately met with serious losses. In ten days Lord Rosse, Lord Wrottesley, and Sir James South have all died. Lord Rosse and Lord Wrottesley had both of them been presidents of the Royal Society, and the only scientific noblemen who have held that presidency for many years. Every one has heard of Lord Rosse's wonderful telescope. The discoveries made with it have been of great interest and importance; and the telescope is still unrivalled. It was made chiefly by Lord Rosse's own hands, and cost 20,000*l.*

THE "ACCUMULATOR" DOOR-SPRING: TRADE MARKS.—At the Central Criminal Court, before the Recorder, Henry Brook, ironmonger, was placed at the bar on a charge substantially of forging a trade mark with intent to defraud. The prosecutor was Mr. R. E. Hodges, of Southampton-row, who manufactured an "accumulator" door-spring. For this article Mr. Brook acted as an agent for eleven years; but in 1866, Mr. Hodges, not being satisfied with his conduct, refused any longer to supply him. The defendant then got a similar article made, and sold them in printed wrappers similar to those used by the prosecutor. The patent having expired in 1863, anybody was at liberty to manufacture the "accumulator;" but the charge was that he disposed of those of his own make under the representation that they were the prosecutor's. The jury returned a verdict of Not Guilty.

OPENING OF A NEW PARK AT CHESTER.—The new park, lately presented to the city of Chester by the Marquis of Westminster, was opened on Tuesday with great expression of the citizens' appreciation of the gift. The park has been in course of construction about two years. On the right-hand side of the principal entrance there is a lodge which is built in the timbered style, and corresponds in every particular with the ancient characteristic architecture of the city. In November, 1865, a subscription was originated for the purpose of erecting a testimonial of the public and private worth of the Marquis of Westminster. Upwards of 5,000*l.* were raised for this purpose, and it was resolved that the testimonial should take the form of a statue, to be erected in the new park, which at that time had been just commenced. A fountain has been erected over a spring known from time immemorial as "Billy Hobby's Well." The entire cost is said to be 70,000*l.*

THE LEEDS EXHIBITION.—We may as well make clear that this undertaking is exclusively for the illustration of the fine and ornamental arts, and that the works will be distributed as follows:—1. Three galleries of oil paintings by the old masters, and a collection of their drawings and sketches; 2. Two galleries of oil paintings of the English school by deceased and living artists; 3. A gallery of oil paintings by modern foreign artists; 4. A gallery of English water-colour drawings; 5. A gallery of portraits of deceased Yorkshire worthies; 6. A collection of miniatures; 7. A gallery of engravings, etchings, &c.; 8. An Oriental museum; 9. A museum of ornamental art, from the earliest British period to the close of the eighteenth century, including furniture, tapestry, china, glass, metal work, &c.; 10. A collection of marble sculpture. The building in which the display will be held is the new Infirmary of Leeds, lately erected at a cost of 100,000*l.*, its principal interior features being a large central hall 150 ft. long by 65 ft. wide, surrounded by corridors and galleries.

DERBYSHIRE MEMENTOES OF NIAGARA FALLS. A Quebec paper states that the Table Rock ornaments, sold at the Falls of Niagara, are manufactured from spar imported into America from Derbyshire in England.

FROM IRELAND.—The improvements at the rising town of Holywood, according to the *Belfast News Letter*, are rapidly on the increase. New houses are being erected on a large scale. Holywood ranks amongst the healthiest towns in Ireland. The town commissioners have lately constructed new sewers in every part of the town. The public buildings are all of modern erection. The parish church is immediately to be greatly enlarged, and ground has been taken for the new Roman Catholic chapel. The increase of the population, within the last few years, has been remarkable.

MONUMENTAL.—The marble statue of Andrew Marvel, executed by Mr. W. D. Keyworth, jun., of Hull and London, and presented to the town by Mr. Winship, has been inaugurated at the town-hall, Hull. The ceremony took place on the ground landing, where the statue has been placed.——A statue has been inaugurated at Rotterdam, to the memory of Count van Hogendorf, the statesman who went to England to offer the crown of the Low Countries to William of Orange, son of the Stadtholder, William I. The King of Holland, the Prince of Orange, the ministers, and the principal personages of the kingdom were present at the ceremony, which was presided over by the burgomaster of the place.

TENDERS

For the erection of a pair of detached country houses in Croydon-road, Penge. Mr. H. Wiber Webster, architect:—

Poxon & Smith	£1,992 0 0

Alterations to the Vulcan Tavern, Salmon-lane, Limehouse, for Mr. John S. Essey. Mr. Arthur Harston, architect:—

Heiser	£1,331 0 0
Hearle	1,275 0 0
Johnston	1,233 0 0
Palmer (accepted)	1,215 0 0

Alterations and reinstatements after fire at Vulcan Cottage, Frederick-street, Limehouse, for Mr. Essey. Mr. Arthur Harston, architect:—

Clemmans	£228 0 0
Allen	204 0 0
Heiser	199 0 0
Hearle	165 0 0
Bullock (accepted)	145 0 0

For building house, shop, and diary, Whitehorn-street, Bromley, Middlesex, for Mr. Sharpley. Mr. Arthur Harston, architect:—

Brown	£837 0 0
Hearle	715 0 0
J. Allen	664 0 0
Golding & Son	660 0 0
W. Allen	655 0 0
Salt (accepted)	535 10 0

For building public-house, boundary wall, and fencing at Nunhead Green, Peckham, for Messrs. Day, Noakes, & Sons. Mr. H. Alexander, architect:—

	Public House.	Wall.	Fencing.
Eustace	£947 ...	£45 ...	£26
Waterer	910 ...	50 ...	24
Tarrant	894 ...	68 ...	27

For additions and alterations at the Ship Public-house, Erith, for Messrs. Day, Noakes, & Sons. Mr. G. Elkington, architect:—

Blofield	£560 0 0
Tarrant	555 0 0
Willis	540 0 0
Falkner	530 0 0
Eustace	493 0 0

For alterations to 18, Great Portland-street, for Messrs. G. Heggie & Co. Mr. W. F. Potter, architect:—

Tozer	£187 10 0
Stephens & Watson	178 0 0
Gill	170 0 0
Perkins	156 0 0
Ashley (accepted)	150 0 0

For building a house at Beckenham. Mr. James L. Pedley, architect:—

Venner	£2,365 0 0
Howard	2,093 0 0
Messrs. Browne & Robinson	1,987 0 0
Messrs. Breeze & Russell (accepted)	1,688 0 0

For new shop-front, No. 26, Down-street, Piccadilly, for Mr. S. Benjamin. Mr. Joseph S. Moye, architect:—

Walton	£237 0 0
Bywater	178 0 0
Barnett (accepted)	170 0 0

For Building a public-house for Messrs. Vallance, Catt, & Co., at Brighton. Mr. Tupper, architect:—

Patching & Son	£1,045 0 0
Lockyer	1,035 0 0
Cheesman & Co.	1,020 0 0
Anscombe & Newnham (accepted)	952 0 0